



DULUTH INTERNATIONAL AIRPORT

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**DULUTH INTERNATIONAL AIRPORT
NEW PASSENGER TERMINAL
BID PACKAGE 1
CONFORMANCE DOCUMENTS**

FAA AIP No. - 3-27-0024-48-10
RS&H PROJ. No. - 213.1882.091
CITY OF DULUTH BID No. - 10-4401

**PROJECT MANUAL
VOLUME 1 OF 2**

Date: JULY 12, 2010



Architects and Civil Engineers:
**REYNOLDS SMITH AND HILLS,
INC.**

4525 Airport Approach Road
Duluth, MN 55811
TEL: (218) 722-1227 /
FAX: (218) 722-1052

M/E/P/FP Engineers:
COSENTINI ASSOCIATES INC.
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Chicago IL 60606
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Structural Engineers:
MBJ CONSULTING ENG.

501 Lake Avenue South, Suite 300,
Duluth MN 55802
TEL: (218) 722-1056 /
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Baggage Handling Systems Consultants:
BNP ASSOCIATES INC.

101 East Ridge Office Park, Suite 103,
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TEL: (203) 792-3000 /
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Interior Architects:
SJA ARCHITECTS

11 E Superior Street Suite 340, Duluth
MN 55802
TEL: (218) 724-8578 /
FAX: (218) 724-8717

Landscaping Consultants:
APPOLD DESIGN

2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079





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CERTIFICATION PAGE

CIVIL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN E. HIPPCHEN, P.E.
REYNOLDS, SMITH AND HILLS, INC.

MN REGISTRATION #: 22088

DATE: _____

ARCHITECTURAL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

MARK K. IP, I.A.I.
REYNOLDS, SMITH AND HILLS, INC.

MN REGISTRATION #: 46001

DATE: _____

STRUCTURAL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PAUL A. JOHNSON, P.E.
MBJ ENGINEERING, INC.

MN REGISTRATION #: 20379

DATE: _____

MECHANICAL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DOUGLAS C. MASS, P.E.
COSENTINI ASSOCIATES INC.

MN REGISTRATION #: 21067

DATE: _____

PLUMBING

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DOUGLAS C. MASS P.E.
COSENTINI ASSOCIATES INC.

MN REGISTRATION #: 21067

DATE: _____

ELECTRICAL

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DOUGLAS C. MASS, P.E.
COSENTINI ASSOCIATES INC.

MN REGISTRATION #: 21067

DATE: _____

Invitation to Bid

Project Name/Description: Duluth International Airport - New Passenger Terminal
Bid Package 1 - Sitework, Structure, Enclosure

FAA PROJECT No: 3-27-0024-48-10
SP: 6901-162, 6901-165, 6901-166

City of Duluth Bid No. 2010-4401

Sealed bids will be received for the Duluth Airport Authority by the City Purchasing Agent in and for the Corporation of the City of Duluth at his office, Room 100 City Hall, Duluth, MN 55802 (218) 730-5340 at 2:00 p.m. local time on Thursday, June 17, 2010 for the above named project, and will be publicly opened and read aloud immediately thereafter.

The project scope consists of: Bid Package 1, which includes civil sitework-site utilities, grading, paving and lighting; building structure and enclosure.

BASIS OF BIDS: Multiple Prime Bids will be received for labor and materials as outlined in the Work Scope Descriptions as described in Section 01014.

TIME OF COMPLETION: Owner requires Work to be substantially complete on or before October 1, 2011, and fully complete before October 15, 2011, and in accordance with the contract documents. Bids shall reflect all costs necessary to meet this schedule requirement.

A separate Bid Form Packet will be furnished for bid submission. All bidders must use the original Bid Form Packet for submission of their bid. Faxed bids will not be allowed.

A Pre-bid conference will be held on Tuesday, May 25, at 2:30 p.m. in the Skyline Room, 2nd Floor of the existing Passenger Terminal Building, Duluth International Airport, after which there will be an opportunity to examine the site of the proposed work.

PROJECT LABOR AGREEMENT: Each contractor and subcontractor, having submitted a bid on this project certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the project. In the interests of such harmony and the long-term supply of skilled manpower, each successful contractor and any and all levels of subcontractors, as a condition of being awarded a contract or subcontract, will agree to abide by the provisions of Project Labor Agreement as executed by and between Owner, Kraus-Anderson® Construction Company (Construction Manager for project) and the Duluth Building and Construction Trades Council and its affiliated local unions, and will be bound by the provisions of that agreement in the same manner as any other provision of the Contract. A draft copy of the agreement is available for inspection at the office of the Construction Manager, Kraus-Anderson® Construction Company, 3716 Oneota Street, Duluth, MN 55807, and is included by reference in these Contract Documents as fully as if herein set forth.

Under Minnesota Statute S473.144, the Authority may not accept any bid or proposal for a contract or execute a contract for goods or services in excess of \$100,000 with any business having more than 40 full time employees in Minnesota at any time during the previous 12 months, unless the business has an affirmative action plan for the employment of minority persons, women, and the disabled that has been approved by the Commission of Human Rights. The Commission's certificate of compliance form and any required documentation indicating a bidder's compliance or exemption from this requirement must be submitted within three business days following the opening of the bids and prior to award of

the contract. Bids will be considered non-responsive if the certificate of compliance requirement as set forth in the specifications is not met.

The schedule of minimum wages as established by the Secretary of Labor and set forth in the specifications is to govern on this project, and bids shall be based on these established minimum wage rates. However, in accordance with Minnesota law, overtime must be paid for work in excess of 8 hours per day and 40 hours per week.

Nondiscrimination in Employment: The proposed contract shall be under and subject to Executive Order No. 11246 of September 24, 1965, as amended, and to the equal opportunity clause, mandated by the regulations promulgated pursuant thereto. The proposed contract must incorporate the terms set forth in the affirmative action attachments included in the specifications for this project. The bidder (proposer) must supply all the information required by the bid or proposal form. Certification of Non-Segregated Facilities will be required as described in the Instructions to Bidders.

The Airport Authority, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. Women will be afforded equal opportunity in all areas of employment. However, the employment of women shall not diminish the standards or requirements for employment of minorities.

The bidder/offerer certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by a Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts and subcontracts. Where the bidder/offerer/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

The contractor, by submission of an offer and/or execution of a contract, certifies that it is in compliance with Restrictions on Federal Public Works Projects as set forth in Attachment 3 to the construction contract. Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts.

The bidder shall make good faith efforts as defined in Appendix A of 49 CFR Part 23, Regulations of the Office of the Secretary of Transportation to subcontract Four and nine and a one-half tenths percent (4.95%) of the dollar value of the contract to small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE).

The individuals who are presumed to be socially and economically disadvantaged include Women, Blacks, Hispanics, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans.

In the event that the apparent successful bidder of this solicitation qualifies as a DBE, the contract goal shall be deemed to have been met.

Bidders will submit, in writing, the names of the DBEs included in their bid, a description of the work DBEs will perform, and the dollar value of each DBE subcontract.

Exclusive agreements between DBEs and bidders are forbidden. The DAA reserves the right to waive failure of a bidder to meet the DBEs goals if sufficient effort as determined by DAA has been made to comply with the DBE goals and the requirements are not met.

The bids shall be accompanied by an Affidavit of Non-Collusion and written assurance that the bidder has made a good faith effort towards meeting DBE goals.

A bidder's or proposer's failure to show a good faith effort to achieve the specified contract goal for the participation of Disadvantaged Business Enterprise in the completion of this project will be grounds for finding the bid or proposal non-responsive.

Notice of Requirements for Affirmative Action to Ensure Equal Employment Opportunity - State of Minnesota Requirements:

The offerer's or bidder's attention is called to the "equal opportunity clause" set forth herein.

The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the Covered Area as follows: Goals for minority participation in each trade, 1.0%; goals for female participation in each trade, 6.9%.

These goals are applicable to all contractors' construction work performed in the Covered Area.

The contractor's compliance with Minnesota Statutes, section 473.144 and part 5000.3520 shall be based on its implementation of the equal opportunity clause, specific affirmative action obligations required by part 5000.3540, and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, Minnesota Statutes, section 473.144 and part 5000.3520. Compliance with the goals will be measured against the total work hours performed.

The contractor shall provide written notification to the Compliance Division of the Minnesota Department of Human Rights within ten working days of award of any construction contract at any tier for construction work under the contract resulting from the solicitation.

The notification must list the name, address and telephone number of the subcontractor; employer identification number, estimated dollar amount of the subcontract; and the geographical area in which the contract is to be performed.

As used in this notice, and in the contract resulting from this solicitation, the "Covered Area" is the City of Duluth in St. Louis County, Minnesota.

See Instructions to Bidders for Federal requirements for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246, as amended).

Each bid proposal shall be accompanied by a "Bid Security" in the form of a certified check made payable to the Duluth Airport Authority in the amount of not less than 5% of the total bid or a surety

bond in the amount payable to the Authority with the surety company thereon duly authorized to do business in the State of Minnesota, such Bid Security to be a guarantee that the bidder will not, without the consent of the Authority, withdraw his bid for a period of 90 days after the opening of bids, and if the successful bidder, will enter into a contract with the Duluth Airport Authority and in connection therewith, give Public Contractor's Bond as required by law; and the amount of the certified check will be retained or bond enforced by the Authority in case the bidder fails so to do.

The Bid Security of the three lowest bidders will be retained until the contract is executed, but in no event longer than 90 days provided that the Bid Security of the lowest responsible bidder shall be retained in any event until the contract is executed and Public Contractor's Bond furnished as herein provided.

The bid of the lowest responsible bidder, provided said low bidder has made a good faith effort to meet the DBE contract goal will be accepted on or before the expiration of 90 days after the date of the opening of bids. In the event that the Authority deems it in it's best interest to delay the award of the contract (i.e. if the federal funding for the project is delayed) the 90 day time period may be extended for up to one year if mutually agreed upon by both the bidder and the Authority. The Authority, reserves the right to reject any or all bids and to waive any minor irregularities, informalities or discrepancies.

Inquiries regarding Plans and Specifications may be directed to the Architect/Engineer of Record Reynolds, Smith & Hills, Inc. at (218) 722-1227, or the Construction Manager of Record, Kraus Anderson Construction Company at (218) 722-3775. Plans and Specification will also be on file at the Duluth Purchasing Agent, the Duluth, Hibbing, Minneapolis & St. Paul Builders Exchanges, Reed Construction Market, and MEDA/IsqFt Plan Rooms.

Copies of Drawings, Specifications and a separate Bid Form Packet may be obtained on or after May 17, 2010. Order printed sets through Shel/Don Group Inc.'s online Plan Room at www.sheldonplanroom.com. Contact Jeanette Herubin, Shel/Don Group, at 218-727-2817, for final non-refundable deposit cost. Non-refundable checks made payable to Shel/Don Group, Inc. Plans can be picked up at Shel/Don, 124 E Superior Street, Duluth, MN 55802, once required deposit has been received by. This payment will not be refunded.

Examination of Documents: Bidders shall carefully examine entire contents of Contract Documents prepared for the Work to become thoroughly familiar with all requirements.

Additional Compensation: Contractors shall not receive extra payments for conditions which can be determined by examining the site and the Contract Documents.

Duluth Airport Authority

By: Dennis Sears
City of Duluth Purchaser
100 City Hall
Duluth, MN 55802

To appear in DNT:
May 17th and 18th, 2010

This advertisement is also available on the City of Duluth website at:
http://www.duluthmn.gov/purchasing/bid_information.cfm

NOTICE TO BIDDERS

Minnesota Statutes that require prompt payment to subcontractors:

471.425 Prompt payment of local government bills.

Subd. 1. Definitions. For the purposes of this section, the following terms have the meanings here given them.

(d) "Municipality" means any home rule charter or statutory city, county, town, school district, political subdivision or agency of local government. "Municipality" means the metropolitan council or any board or agency created under chapter 473.

Subd. 4a. Prompt payment to subcontractors.

Each contract of a municipality must require the prime contractor to pay any subcontractor within ten days of the prime contractor's receipt of payment from the municipality for undisputed services provided by the subcontractor. The contract must require the prime contractor to pay interest of 1-1/2 percent per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor. The minimum monthly interest penalty payment for an unpaid balance of \$100 or more is \$10. For an unpaid balance of less than \$100, the prime contractor shall pay the actual penalty due to the subcontractor. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

HIST: 1985 c 136 s 5; 1995 c 31 s 1

INSTRUCTIONS TO BIDDERS

- 1) Use of Separate Bid Forms These contract documents include a complete set of bidding and contract forms which are for the convenience of bidders and are not to be detached from the contract document, completed, or executed. **Separate copies of bid forms are furnished for that purpose.**
- 2) Interpretations or Addenda No oral interpretation will be made to any bidder as to the meaning of the contract documents or any part thereof. Every request for such an interpretation shall be made in writing to the city of Duluth. Any inquiry received seven or more days prior to the date fixed for opening of bids will be given consideration. Every interpretation made to a bidder will be in the form of an addendum to the contract documents, and when issued, will be on file in the office of the City Engineer at least five days before bids are opened. In addition, all addenda will be mailed to each person holding contract documents, but it shall be the bidder's responsibility to make inquiry as to the addenda issued. All such addenda shall become part of the contract and all bidders shall be bound by such addenda, whether or not received by the bidders.
- 3) Inspection of Site Each bidder should visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to construction and labor, and should fully inform himself as to the facilities involved, the difficulties, and the restrictions attending the performance of the contract. The bidder should thoroughly examine and familiarize himself with the drawings, technical specifications, and all other contract documents. The contractor, by the execution of the contract, shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing; the city of Duluth will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.
- 4) Alternative Bids No alternative bids or bid items will be considered unless alternative bids are specifically requested by the technical specifications.
- 5) Bids
 - a) All bids must be submitted on forms supplied by the City Engineer and shall be subject to all requirements of the contract documents, including the drawings, and these **Instructions to Bidders**. All bids must be regular in every respect; no interlineations, excisions, or special conditions shall be made or included in the bid form by the bidder.
 - b) Bid documents, including the bid and the bid guaranty, shall be enclosed in an envelope which shall be sealed and clearly labeled with the project number, if any, name of bidder, and date and time of bid opening, in order to guard against premature opening of the bid. If the proposal is mailed, this envelope shall be placed in another envelope which shall be sealed and labeled with project number, if any, name of bidder, and date and time of bid opening -- and addressed to city of Duluth Purchasing Manager, 100 City Hall, Duluth, Minnesota 55802.
 - c) The city of Duluth may consider as irregular any bid on which there is an alteration of or departure from the bid form hereto attached and, at its option, may reject the same.
 - d) If the project is awarded, it will be awarded by the city of Duluth to the lowest responsible bidder assuming that the bids are within funds available based on the lowest base bid and or in combination with selected alternates (if any). The alternates will be accepted in descending order. By the award of the contract, it is assumed that the work will be completed within the time-frame as specified within the contract documents.
 - e) Each bidder shall include in his bid the following information:
 - Principals -- names, social security numbers, home addresses, including city, state, and zip code
 - Firm -- name, treasury number, address, city, state, and zip code
 - Mechanical & Electrical Subcontractors -- names of firms that will do the mechanical and electrical work and the amounts of the mechanical and electrical sub-bids, if applicable and when (where indicated on Bid Proposal form).
- 6) Bid Guaranty
 - a) The bid must be accompanied by a bid guaranty which shall not be less than five percent (5%) of the amount of the bid. At the option of the bidder, the guaranty may be a certified check, bank draft, negotiable U.S. Government bond (at par value), or a bid bond. No bid will be considered unless it is accompanied by the required guaranty. Certified check or bank draft must be made payable to the order of the city of Duluth, Minnesota. Cash deposits will not be accepted. The bid guaranty shall insure the execution of the agreement and the furnishing of the surety bond or bonds by the successful bidder, all as required by the contract documents.
 - b) Revised bids submitted before the opening of bids, whether forwarded by mail, fax, or in person, if representing an increase in excess of two percent (2%) of the original bid, must have bid guaranty adjusted accordingly; otherwise, the bid will not be considered.
 - c) Certified checks or bank drafts, or the amount thereof, bid bonds, and negotiable U.S. Government bonds of unsuccessful bidders, will be returned as soon as practical after the opening of bids.

7) Collusive Agreements

- a) The successful bidder on each city of Duluth construction project shall be required to execute a city of Duluth non-collusive affidavit to the effect that he has not entered into a collusive agreement with any other person, firm, or corporation in regard to any bid submitted.
- b) Before executing any subcontract, the successful bidder shall submit the name of any proposed subcontractor for prior approval on the MnDOT Request to Sublet Form (Standard Specification 1801) TP-21834 (5/18/2007).

8) Unit Prices The unit price, for each of the several items in the proposal of each bidder, shall include its prorata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the total bid. Any bid not conforming to this requirement may be rejected as informal. The special attention of all bidders is called to this provision; for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%), except for work not covered in the drawings and technical specifications.

9) Corrections Erasures or other changes in the bids must be explained or noted over the signature of the bidder.

10) Time for Receiving Bids

- a) Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer, whose duty it is to open them, will decide when the specified time has arrived and no bid received thereafter will be considered; except that when a bid arrives by mail after the time fixed for opening, but before the reading of all other bids is completed, and it is shown to the satisfaction of the city Purchasing Office that the non-arrival on time was due solely to delay in the mails for which the bidder was not responsible, such bid will be received and considered.
- b) Bidders are cautioned that, while fax modifications of bids may be received as provided above, such modifications, if not explicit and if in any sense subject to misinterpretation, shall make the bid so modified or amended, subject to rejection.

11) Opening of Bids At the time and place fixed for the opening of bids, the city Purchasing Manager will cause to be opened and publicly read aloud every bid received within the time set for receiving bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present in person or by representative.

12) Withdrawal of Bids Bids may be withdrawn on written or faxed request dispatched by the bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any faxed withdrawal over the signature of the bidder is placed in the mail and postmarked prior to the time set for bid opening. The bid guaranty of any bidder withdrawing his bid in accordance with the foregoing conditions will be returned promptly.

13) Award of Contract: Rejection of Bids

- a) The contract will be awarded to the responsible bidder submitting the lowest bid complying with the conditions of the Invitation to Bid. The bidder, to whom the award is made, will be notified at the earliest possible date. The city of Duluth, however, reserves the right to reject any and all such bids and to waive any informality in bids received whenever such rejection or waiver is in its interest.
- b) The city of Duluth reserves the right to consider as unqualified to do the work of general construction, any bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in the contract documents. A project labor agreement will be included in all contracts exceeding \$150,000.

14) Execution of Agreement: Performance and Payment Bond.

- a) Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful bidder shall execute and deliver to the city of Duluth an agreement in the form as furnished by the City, in such number of copies as the city of Duluth may require.
- b) Having satisfied all conditions of award as set forth elsewhere in these documents, the successful bidder shall, within the period specified in paragraph "a" above, furnish:
 - 1) A performance bond for the use and benefit of the city of Duluth to complete the contract according to its terms, and conditioned on saving the city of Duluth harmless from all costs and charges that may accrue on account of completing the specified work; and

- 2) A payment bond for the use and benefit of all persons furnishing labor and materials for the performance of the contract conditioned upon the payment, as they become due, of all just claims for labor and materials.

Both the performance bond and the payment bond shall be in a penal sum of not less than the amount of the contract awarded. Such bonds shall be in the same form as that included in the contract documents and shall bear the same date as, or a date subsequent to, that of the agreement. A current power of attorney for the person who signs for any surety company shall be attached to such bonds.

- c) The failure of the successful bidder to execute such agreement to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the city of Duluth may grant, based on reasons determined sufficient by the city of Duluth, shall constitute a default, and the city of Duluth may either award the contract to the next lowest responsible bidder or re-advertise for bids, and may charge against the bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the city of Duluth for a refund.

15) Wages and Salaries

- a) Attention of bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and fringe benefit rates specified in the contract documents and the conditions of employment with respect to certain categories and classifications of employees.
- b) The rates of pay set forth in prevailing wage schedule(s) are *potentially* the minimums to be paid during the life of the contract. Project funding sources, bid opening date, contract award date, and the contract start date may be factors resulting in a change of prevailing wage schedules. It is, therefore, the responsibility of bidders to inform themselves as to local labor conditions, such as the length of work day hours in conjunction with the project's funding sources, overtime compensation, health and welfare contributions, labor supply, and prospective changes or adjustments of rates. A project labor agreement will be included in all contracts exceeding \$150,000.

- 16) Equal Employment Opportunity Attention of bidders is particularly called to the requirement for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin. (See Supplementary General Conditions, Part II, Section 11).

- 17) Employment and Business Attention of bidders is particularly called to the requirement that, to the greatest extent feasible, opportunities for training and employment made possible by this project shall be given to lower income residents of the city of Duluth. Additionally, if any work is subcontracted, efforts should be made to award subcontracts to concerns located in or owned in substantial part by persons residing in the city of Duluth.

- 18) Sales and Use Taxes It is assumed that, in the preparation of his proposal, the bidder has taken into consideration his/her liability from any sales, use, or excise tax that might be assessed in the purchase of, storage, use, or consumption of any materials, services, or supplies for performance of the contract work. Any such tax paid by the contractor will be considered as his/her expense, for which no direct compensation will be made by the city to the contractor over and above the accepted bid.

19) Pre-Bid/Pre-Construction Meetings

- a) Should a pre-bid meeting will be held, it will be conducted seven (7) days prior to the bid date (see **Bid Form** for time and place). All prime bidders are requested to attend. All bidders will be allowed to make inquiries regarding the contract documents. All formal decisions will be documented by addendum. Failure of any prime bidders to attend this meeting could jeopardize the contract award.
- b) Approximately seven (7) days after city council approval of contract award, the successful bidder is required to attend a pre-construction meeting. At this meeting, the successful bidder will present his/her construction schedule, cost breakdown, required submittals, etc.

20) Equal Employment Opportunity (EEO) Affirmative Action Police Statement and Compliance Certificate.

- a) The successful bidder on each city of Duluth construction project shall be required to execute a certificate substantially in the form herein provided.
- b) Before executing any subcontract in excess of \$2,500, the successful bidder shall require the subcontractor to execute a form similar in nature to the form herein provided.

00100 - INSTRUCTIONS TO BIDDERS

1. NOTICE FOR BIDS: Stipulated sum bids will be received for New Passenger Terminal, Duluth International Airport, Duluth, MN, for Bid Package 1, as stated in the Invitation to Bid.
2. RECEIVING AND OPENING OF BIDS: Bids will be received as stated in the Invitation to Bid and will be opened immediately after the bid closing hour at a location designated by Owner. All bids must be submitted on the original Bid Form Packet provided with Contract Documents.

The Owner may consider informal any bid not prepared and submitted in accordance with provisions herein and may waive any informalities or reject any and all bids.

3. MODIFICATION OF BIDS: Oral, telephone or telegraphic bids or modifications to bids will not be considered.
4. CONTRACTS: Bids will be received and the project will be constructed under prime contracts as outlined in the Work Scope Descriptions.
5. DRAWINGS AND SPECIFICATIONS ON FILE: Bidding requirements, drawings and specifications are on file at the offices of the Construction Manager and RS&H, Inc., and the following locations:

Duluth Builders Exchange
802 Garfield Avenue
Duluth, MN 55802
Telephone: 218-722-2836

Minneapolis Builders Exchange
1123 Glenwood Avenue
Minneapolis, MN 55405
Telephone: 612-381-2620

St. Paul Builders Exchange
445 Farrington Street
St. Paul, MN 55103
Telephone: 651-224-7545

McGraw-Hill
1401 Glenwood Avenue
Minneapolis, MN 55405
Telephone: 612-381-2290

Hibbing Plan Room
211 E. Howard Street
Hibbing, MN 55746
Telephone: 218-262-3895

Reed Construction Document Processing
30 Technology Parkway South, Suite 500
Norcross, GA 30092-2912
Telephone: 800-424-3996

MEDA/IsqFt Planroom
c/o Franz Reprographics, Inc.
Attn: Evan Duncan
2781 Freeway Blvd. #100
Brooklyn Center, MN 55430

00100 - INSTRUCTIONS TO BIDDERS

Telephone: 763-503-9335

6. **INQUIRIES REGARDING PROJECT - DISCREPANCIES OR AMBIGUITIES:** All inquiries, requests for clarifications, requests for consideration of materials not specified and similar questions shall be directed to RS&H, Inc. in writing. Discrepancies or ambiguities in, or omissions from, the drawings, specifications or other Contract Documents, or should there be doubt as to their meaning, an interpretation shall be requested from RS&H, Inc., in writing. All inquiries, requests for clarification, requests for consideration of materials and products, must be received by RS&H, Inc. by Friday, June 4, 2010 (unless longer periods are specified elsewhere in the specifications for certain work). It is the bidder's (and Contractor's) responsibility to bring all discrepancies, ambiguities, omissions or matters in need of clarification to the attention of RS&H, Inc. for interpretation and decision. If there is a discrepancy that is unclarified prior to the Bid, the Contractor shall be responsible for the more stringent interpretation of the unclarified condition.
7. **ADDENDA AND INTERPRETATIONS:** Replies to inquiries, requests for interpretations or clarifications and requests for consideration of materials which involve or provide information that is not already a part of bidding information will be contained in addenda and shall become a part of Contract Documents and incorporated in all bids submitted.

All bidders, submitting labor and/or supply bids, are responsible to ascertain what addenda have been issued prior to bid date, examining the addenda and determining the affect of addenda provisions on their Work Scope.

Interpretations, clarifications, modifications and supplemental instructions in form of written addenda will be provided to all prime contract bidders on record at the Construction Manager's office, and to Builders Exchanges where plans are on file. RS&H, Inc. and Owner will not be responsible for or honor any claims resulting from, or alleged to be the result of, misunderstanding by the bidder (or Contractor) of verbal discussion of the Project conditions prior to receiving bids. All verbal comments made during the bidding period are subject to inclusion in addenda; otherwise, they shall not be binding on Owner or RS&H, Inc.

During construction, discrepancies, ambiguities and intent not clarified by addenda will be subject to interpretation of RS&H, Inc. only, and work shall be provided in accordance with RS&H, Inc.'s interpretations.

Bidders shall state on bid form the number of addenda received.

00100 - INSTRUCTIONS TO BIDDERS

8. **PROCUREMENT OF DOCUMENTS FOR BIDDERS ON PRIME CONTRACTS:** Copies of Drawings, Specifications and a separate Bid Form Packet may be obtained on or after May 17, 2010. Order printed sets through Shel/Don Group Inc.'s online Plan Room at www.sheldonplanroom.com. Contact Jeanette Herubin, Shel/Don Group, at 218-727-2817, for final non-refundable deposit cost. Non-refundable checks made payable to Shel/Don Group, Inc. Plans can be picked up at Shel/Don, 124 E Superior Street, Duluth, MN 55802 once required deposit has been received by. This payment will not be refunded.
9. **PLANS FOR SUBCONTRACTORS, MATERIAL DEALERS & QUANTITY SURVEYORS:** A complete set of drawings and specifications may be obtained from the Shel/Don Group, Inc., as stated in #8 above.
10. **OBLIGATION OF BIDDER - EXAMINATION OF DOCUMENTS & SITE:** Each bidder (including subcontract bidder where appropriate) is responsible to visit the site and to fully inform himself and record his own investigations as to the extent of the Work, the extent of the work performed by other contractors under other construction packages, conditions under which the Work is to be performed, existing buildings and streets, conditions of the area, existing utilities and other features, type of soil, available facilities and difficulties that may be encountered in connection therewith, and other relevant items which will affect his bid or the Work.
- Prior to submitting a bid, each bidder is required to examine all of the bidding requirements, all Contract Documents, all drawings and specifications for the Project (including those primarily for other Subcontracts), become thoroughly familiar with the scope of the Project and all factors and items of work which will affect his bid or the Work, whether shown or specified in documents primarily for Work of others or Work of this Contract.
- No extras will be allowed the Contractor as a result of misunderstanding of the extent of scope of the Work as a result of his failure to study and record his own findings. Submission of a bid shall be proof that such examinations have been made and that bidder has recorded his own investigation and has become thoroughly familiar with all contract documents (including all addenda). The failure or omissions of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect to his bid.
11. **CONDITIONS OF WORK:** Each bidder must inform himself fully of conditions relating to the construction of the Project and the availability and employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation

00100 - INSTRUCTIONS TO BIDDERS

to furnish all materials and labor necessary to carry out the provisions of his contract. Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the Work of any other Contractor.

12. PREPARATION OF BID: Submit bids to Owner in accordance with the following requirements:
 - A. Submit Bid Form Packet in duplicate on the prescribed form, which is furnished with the specification, with full name and address of the bidder.
 - B. Completely fill in all blank spaces on the Bid Form, in ink or typewriter, in both words and figures.
 - C. Sign in longhand, executed by a principal duly authorized to enter into an agreement. If a bidder is a co-partnership, then signatures on the bid shall be by an authorized member of the firm, with names and addresses of each member of partnership.
 - D. Base bid (Basic Proposal) and all alternate bids shall be stated both in writing and in figures. In all cases, written and numerical figures must agree; otherwise at Owner's option, it shall be cause for rejection of bid. Complete form without interlineation, alteration, erasure.
 - E. Submit alternate prices (bid) for either increasing or decreasing the cost as called for on bid form and Description of Alternates. Submit a bid for all alternates, except those which may be denoted as optional.
 - F. Do not stipulate any other conditions, alternates or qualifications. Owner will not accept any condition not contained in specifications or other documents.
 - G. Submit bid in a sealed envelope bearing (on the outside) name of the bidder, address, name of the Project and Work Scope for which bid is submitted. The official Bid Form Packet must be submitted. If forwarded by mail or other means of delivery, sealed envelope containing the bid must be enclosed in another envelope addressed as specified.
13. BID SECURITY - EXECUTION OF CONTRACT: With each bid, submit a certified check or cashier's check on a solvent bank, or bid bond, equal to five percent (5%) of amount of maximum bid submitted (including additive alternates) and made payable without recourse to Duluth Airport Authority.

00100 - INSTRUCTIONS TO BIDDERS

For bid bonds, form may be surety's standard form or AIA Form A-310, duly executed by the bidder as principal, issued by a corporate surety company authorized to do business in the State of Minnesota, with copy of Power of Attorney attached, as well as proper acknowledgments.

Bid security in form of certified or cashier's check will be returned to all but the three lowest bidders within ten (10) days after opening of bids.

Bid security shall be forfeited to Owner as liquidated damages in the event bidder is awarded a Contract and he fails or refuses to execute the Agreement and furnish specified bond within ten (10) days after award, provided Agreement is ready for signature. If Agreement has not been prepared within ten (10) days, Contractor shall have two (2) days after its preparation for execution.

14. **WITHDRAWAL OF BIDS:** A bidder may withdraw his bid at any time prior to date set for receiving bids (or authorized postponement thereof). Thereafter, the bids may be withdrawn only after sixty (60) days has elapsed after bid date, provided Owner has not acted thereon.
15. **QUALIFICATIONS OF BIDDERS:** Owner may make such investigations as he deems necessary to determine the ability and responsibility of the bidder to perform the work, and any bidder shall furnish to Owner all such information and data for this purpose, as the Owner may request. Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the Work contemplated therein. The competence and responsibility of bidder will be considered in making an award, including, but not limited to: (1) proof of financial responsibility, (2) quality of similar work, (3) amount of experience with similar projects, (4) facilities, personnel and equipment, (5) reputation for performance, and (6) ability to complete the work within specified time. Owner reserves the right to reject any Bid where there is reasonable doubt as to the qualifications of the bidder.
16. **ACCEPTANCE OF BID - AWARD OF CONTRACT:** Owner reserves the right to (1) accept bidder's Base Bid only, (2) accept any one or more of bidder's Alternate Bids, in any order regardless of the order in which they were listed, (3) reject all Bids, (4) award contract based on his investigation of bidders, as well as acceptance of alternates, all of which Owner deems to be in his best interest, (5) waive informalities or minor irregularities in bids and waive minor irregularities or discrepancies in bidding procedure.
17. **PERFORMANCE BOND:** Upon award of Contract, Contractor shall provide Performance and Payment Bonds in the amount of 100% of Contract Sum using the forms specified in the Contract Documents.

00100 - INSTRUCTIONS TO BIDDERS

18. SUBCONTRACTS - SUPPLIERS: Proposed subcontractors are subject to Owner's, Construction Manager's and RS&H, Inc.'s acceptance. The right of rejection may be exercised when there is reasonable doubt the subcontractor (supplier) will be able to satisfactorily perform work under the Contract.
19. COMPLETION TIME: Commencement of Work and time of completion shall be an essential condition of the Contract. Work shall be completed within time specified, agreed upon and entered into Contract. Refer to Section 01041 for dates and further requirements of completion.
20. WORK UNDER PREVIOUS CONSTRUCTION PHASES: Bidders shall acknowledge that project work is being conducted under previous construction phases. Bidders shall acquaint themselves with the work of these previous phases in order to coordinate and understand the work of this contract. Plans and specifications for these phases are available for review at RS&H, Inc.'s office and Construction Manager's office.

COMPILATION SPEC

Addendum No. 1, June 11, 2010

Section 00100 Instructions to Bidders

- A. Item 14. Replace "sixty 60 days" with "ninety (90) days".

00100 - INSTRUCTIONS TO BIDDERS

END OF SECTION 00100

WORK SCOPE 2.10 SCHEDULE - ADDENDUM NO. 1

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	TOTAL COST
1	P-100-3.1	MOBILIZATION	LS	1		
2	P-102-10.1	SAFETY AND SECURITY	LS	1		
3	P-104-5.1	PROJECT SURVEY AND STAKEOUT	LS	1		
4	P-105-5.1	TEMPORARY CONSTRUCTION ITEMS	LS	1		
5	F-162-5.1	14' WIDE x 6' DOUBLE LEAF MANUAL GATE	EACH	1		
6	F-162-5.2	6' CHAIN LINK FENCE W/ 3 STRANDS BARBED WIRE	LF	25		
7	2101.501/00010	CLEARING	ACRE	2		
8	2101.502/00010	CLEARING	TREE	75		
9	2101.506/00010	GRUBBING	ACRE	2		
10	2102.501/00010	PAVEMENT MARKING REMOVAL & SEAL COAT	SF	115		
11	2104.501	REMOVE WATER MAIN AND VALVES	LF	535		
12	2104.501/00016	REMOVE SEWER PIPE (STORM)	LF	1535		
13	2104.501/00017	REMOVE SEWER PIPE (SANITARY)	LF	275		
14	2104.501/00035	REMOVE FENCE	LF	1050		
15	2104.501/00040	REMOVE GUARD RAIL & FOUNDATION	LF	500		
16	2104.501/00062	REMOVE CONCRETE CURB AND GUTTER	LF	2700		
17	2104.505/00110	REMOVE CONCRETE PAVEMENT	SY	1500		
18	2104.505/00120	REMOVE BITUMINOUS PAVEMENT (NOMINAL 4-8")	SY	28000		
19	2104.509/00094	REMOVE FLAGPOLE	EACH	1		
20	2104.509/00100	REMOVE MANHOLES OR CATCH BASINS	EACH	14		
21	2104.509/00101	REMOVE MANHOLE (SANITARY)	EACH	1		
22	2104.509/00111	REMOVE HYDRANT	EACH	2		
23	2104.511/00011	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LF	140		
24	2104.513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	515		
25	2105.503/00010	ROCK EXCAVATION	CY	2000		
26	2105.505/00010	MUCK EXCAVATION	CY	2000		
27	2105.515/00010	UNCLASSIFIED EXCAVATION (Civil Only)	CY	27500		
28	2105.521/00032	GRANULAR BORROW MOD 7% (CV)	CY	11989		
29	2105.525/00030	TOPSOIL BORROW (CV) OBTAINED OFFSITE	CY	905		
30	2105.604	GEOTEXTILE FABRIC TYPE V	SY	21029		
31	2211.503/00050	AGGREGATE BASE (CV) CLASS 5	CY	7987		
32	2221.503/00010	AGGREGATE SHOULDERING (CV) CLASS 1	CY	90		
33	2357.502/00010	BITUMINOUS MATERIAL FOR TACK COAT	GAL	1551		
34	2358.501/00010	BITUMINOUS MATERIAL FOR PRIME COAT	GAL	1734		
35	2360.501/23600	TYPE (SP12.5) WEARING COURSE MIXTURE (3,F)	TON	1490		
36	2360.502/23600	TYPE (SP12.5) NON WEARING COURSE MIXTURE (3,F)	TON	1875		
37	2401.515	INTEGRALLY COLORED SIDEWALK CONCRETE (MIX #3A32) W/ 6" x 6" WWF	SF	1925		
38	2401.521/00030	STRUCTURE EXCAVATION CLASS R	CY	250		

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	TOTAL COST
39	2502.541	4" PERFORATED (PVC) PIPE UNDERDRAIN SDR35	LF	3325		
40	2503.511	12" CORRUGATED HDPE PIPE SEWER	LF	802		
41	2503.511	15" CORRUGATED HDPE PIPE SEWER	LF	195		
42	2503.511	18" CORRUGATED HDPE PIPE SEWER	LF	355		
43	2503.511	24" CORRUGATED HDPE PIPE SEWER	LF	615		
44	2503.511	30" CORRUGATED HDPE PIPE SEWER	LF	85		
45	2503.511	42" CORRUGATED HDPE PIPE SEWER	LF	170		
46	2503.511/13080	8" PVC PIPE SEWER (SANITARY)	LF	545		
47	2503.515	42" STEEL FLARED END SECTION	EACH	1		
48	2503.602	CONNECT TO EXISTING STORM MANHOLE	EACH	4		
49	2503.602/00040	CONNECT TO EXISTING SANITARY SEWER	EACH	3		
50	2503.603/00045	PLUG, FILL & ABANDON PIPE	LF	75		
51	2503.603/01308	LINING SEWER PIPE 8"	LF	500		
52	2504.602/00022	RELOCATE HYDRANT & VALVE	EACH	1		
53	2504.602/00024	INSTALL HYDRANT & VALVE	EACH	1		
54	2504.602/00808	8" GATE VALVE & BOX	EACH	6		
55	2504.602/00812	12" BUTTERFLY VALVE & BOX	EACH	2		
56	2504.603	4" PVC IRRIGATION CONDUIT SDR 35	LF	325		
57	2504.603/01042	4" WATERMAIN DUCTILE IRON CL 52	LF	50		
58	2504.603/01063	6" WATERMAIN DUCTILE IRON CL 53	LF	360		
59	2504.603/01083	8" WATERMAIN DUCTILE IRON CL 53	LF	390		
60	2504.603/01123	12" WATERMAIN DUCTILE IRON CL 53	LF	1063		
61	2505.602/00020	CONNECT TO EXISTING GAS MAIN	EACH	1		
62	2505.603/02020	2" HP POLYETHYLENE GAS MAIN	LF	235		
63	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 'G'	EACH	3		
64	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 48-4020	EACH	12		
65	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 60-4020	EACH	7		
66	2506.502	CONSTRUCT DRAINAGE STRUCTURE TYPE 72-4020	EACH	1		
67	2506.521	INSTALL CASTING	EACH	23		
68	2506.521	INSTALL SANITARY CASTING	EACH	1		
69	2506.522/00011	ADJUST FRAME & RING CASTING	EACH	6		
70	2506.602/00011	MANHOLE (SANITARY)	EACH	1		
71	2511.501	RANDOM RIPRAP CLASS IV	CYD	14		
72	2531.501/02120	CONCRETE CURB & GUTTER DESIGN D424	LF	355		
73	2531.501/02320	CONCRETE CURB & GUTTER DESIGN B624	LF	2570		
74	2531.602/00030	INTEGRAL COLORED CONCRETE PEDESTRIAN CURB RAMP (TYPE SPECIAL) PEDESTRIAN CROSSWALKS	EACH	4		
75	2545.523	2 INCH TWO WAY CONCRETE ENCASED DUCT	LF	270		
76	2545.523	2 INCH FOUR WAY CONCRETE ENCASED DUCT	LF	270		
77	2545.523	DIRECTIONAL BORING 2" SCHEDULE 80 PVC	LF	460		
78	2545.523/00053	2" NON-METALLIC CONDUIT (PVC)	LF	9614		
79	2550.512	QUAZITE CAT. NO. PG1730BB30 ELECTRICAL HANDHOLE w/ LID OR APPROVED EQUAL	EACH	11		

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	TOTAL COST
80	2550.512	QUAZITE CAT. NO. PG4872 ELECTRICAL HANDHOLE w/ PG4872HA00 LID OR APPROVED EQUAL	EACH	2		
81	2550.532/11040	POWER CABLE 1 CONDUCTOR NO 4 (EQUIPMENT GROUND)	LF	3450		
82	2550.532	POWER CABLE 1 CONDUCTOR NO 6	LF	8980		
83	2550.532	POWER CABLE 1 CONDUCTOR NO 8	LF	7025		
84	2550.532	1 CONDUCTOR 18 GA SHIELDED CABLE	LF	1825		
85	2564.537/00010	INSTALL SIGN TYPE A, STOP SIGN, R1-1 (COMPLETE W/ POST)	EACH	1		
86	2564.537	INSTALL SIGN TYPE A, ONE WAY SIGN, R6-2R, CR (COMPLETE W/ POST)	EACH	1		
87	2573.502	SILT FENCE TYPE HEAVY DUTY	LF	250		
88	2573.530	STORM DRAIN INLET PROTECTION	EACH	50		
89	2573.540	FILTER LOG TYPE STRAW BIOROLL	LF	400		
90	2573.550	EROSION CONTROL SUPERVISOR	LS	1		
91	2573.604	ROCK CONSTRUCTION ENTRANCE	SY	1340		
92	2575.501/00010	SEEDING	ACRE	4		
93	2575.502	SEED MIXTURE 250	LBS	450		
94	2575.505/00030	SODDING TYPE LAWN	SY	2400		
95	2575.523	EROSION CONTROL BLANKET CATEGORY 2	SY	10800		
96	2575.532	FERTILIZER TYPE 1 10-10-10	LBS	1600		
97	2575.560	HYDRAULIC SOIL STABILIZER, TYPE 6	LBS	1675		
98	2575.572	RAPID STABILIZATION METHOD 4	SY	10800		
99	2582.501/01010	PAVEMENT MESSAGE (HANDICAPPED SYMBOL) PAINT	EACH	29		
100	2582.502	BLACK PAVEMENT MARKING	SF	475		
101	2582.502/11104	4" SOLID LINE WHITE-PAINT	LF	13550		
102	2582.502/11304	4" DOTTED LINE WHITE-PAINT	LF	1150		
103	2582.502/11524	24" STOP LINE WHITE - PAINT	LF	25		
104	SP 38.3	INSTALL TYPE 'C' LIGHT W/ FOUNDATION	EACH	10		
105	SP 39.3	INSTALL TYPE 'A2' LIGHT W/ FOUNDATION	EACH	3		
106	SP 40.3	RELOCATE CHECKPOINT ACCESS & CONTROL SYSTEM FOR EAST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP	EACH	1		
107	SP 41.3	PROVIDE & INSTALL CHECKPOINT ACCESS & CONTROL SYSTEM FOR WEST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP	EACH	1		
108	SP 42.3	SALVAGE GATE OPERATOR	EACH	6		
109	SP 43.3	SALVAGE TICKET DISPENSER	EACH	4		
110	SP 44.3	REMOVE LIGHT & BASE	EACH	10		
111	SP 45.3	WALL & SMALL POST MOUNTED LIGHT REMOVAL	EACH	10		
112	SP 46.3	SITE POWER ALLOWANCE	AL	1		
113	SP 47.3	COMMUNICATIONS ALLOWANCE	AL	1		
114	SP 48.3	TRAFFIC CONTROL/SIGNING ALLOWANCE	AL	1		
115	SP 49.3	TERMINAL BUILDING WORK	LS	1		
116	SP 50.3	PRIVATE UTILITY LOCATING SERVICE	LS	1		
				TOTAL BASE BID WORK SCOPE 2.10		

ADD ALTERNATE #1: GENERAL PARKING LOT SURFACING

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	TOTAL COST
117	P-100-3.1	MOBILIZATION	LS	1		
118	P-104-5.1	PROJECT SURVEY AND STAKEOUT	LS	1		
119	2103.501/00010	BUILDING REMOVAL (CONRAC)	LS	1		
120	2104.501/00035	REMOVE FENCE	LF	95		
121	2104.501/00062	REMOVE CONCRETE CURB AND GUTTER	LF	210		
122	2104.505/00110	REMOVE CONCRETE PAVEMENT	SY	365		
123	2104.505/00120	REMOVE BITUMINOUS PAVEMENT (NOMINAL 4-8")	SY	4885		
124	2104.509/00017	REMOVE UNDERGROUND TANK	LS	1		
125	2104.509/00019	REMOVE GAS PUMP	LS	1		
126	2104.513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	675		
127	2105.515/00010	UNCLASSIFIED EXCAVATION	CY	990		
128	2105.521/00032	GRANULAR BORROW MOD 7% (CV)	CY	440		
129	2105.604	GEOTEXTILE FABRIC TYPE V	SY	800		
130	2105.607/00250	HAUL & DISPOSE OF CONTAMINATED MATERIAL	CY	100		
131	2211.503/00050	AGGREGATE BASE (CV) CLASS 5	CY	380		
132	2357.502/00010	BITUMINOUS MATERIAL FOR TACK COAT	GAL	490		
133	2358.501/00010	BITUMINOUS MATERIAL FOR PRIME COAT	GAL	725		
134	2360.501/23600	TYPE (SP12.5) WEARING COURSE MIXTURE (3,F)	TON	590		
135	2360.502/23600	TYPE (SP12.5) NON WEARING COURSE MIXTURE (3,F)	TON	590		
136	2506.521	INSTALL CASTING	EACH	1		
137	2531.501/02320	CONCRETE CURB & GUTTER DESIGN B624	LF	85		
138	2545.523/00053	2" NON-METALLIC CONDUIT (PVC)	LF	161		
139	2550.532/11040	POWER CABLE 1 CONDUCTOR NO 4 (EQUIPMENT GROUND)	LF	210		
140	2550.532	POWER CABLE 1 CONDUCTOR NO 6	LF	280		
141	2550.532	POWER CABLE 1 CONDUCTOR NO 8	LF	440		
142	2582.502/11104	4" SOLID LINE WHITE-PAINT	LF	4050		
143	SP 39.3	INSTALL TYPE 'A2' LIGHT W/ FOUNDATION	EACH	2		
144	SP 50.3	PRIVATE UTILITY LOCATING SERVICE	LS	1		
				TOTAL ADD ALT. 1 WORK SCOPE 2.10		

ADD ALTERNATE #2: PERIMETER FENCE

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT COST	TOTAL COST
145	2104.501/00035	REMOVE FENCE	LF	1475		
146	F-162-5.3	10' CHAIN LINK FENCE W/ 3 STRANDS BARBED WIRE	LF	1450		
147	F-162-5.4	14' WIDE x 10' DOUBLE LEAF MANUAL GATE	EACH	1		
148	F-162-5.5	PEDESTRIAN GATE 10' HEIGHT	EACH	1		
				TOTAL ADD ALT. 2 WORK SCOPE 2.10		

**REQUEST FOR BID****DATE** 5/17/2010**BID #** 2010-4401

RETURN BY BID OPENING TIME TO:

PURCHASING DIVISION

100 CITY HALL

Duluth, MN 55802

Buyer: Dennis Sears

PHONE: 218-730-5340

FAX: 218-730-5921

**NEW PASSENGER TERMINAL BUILDING
BID PACKAGE 1 - SITEWORK, STRUCTURE, ENCLOSURE****BID OPENING AT 2:00 PM on THURSDAY, JUNE 17, 2010**

Note: all bids must be written, signed and transmitted in a sealed envelope, plainly marked with the bid number, subject matter and opening date. The City of Duluth reserves the right to split award where there is a substantial savings to the City, waive informalities and to reject any and all bids. Bidder should state in proposal if bid price is based on acceptance of total order. Sales tax shall be included in the unit price. Bidder to state freight charges if the proposal F.O.B. is shipping point, freight not allowed. Low bid will not be the only consideration for award of bid. All pages shall be signed or initialed by authorized bidder's representative as indicated at the bottom of the page(s) of the request for bid form.

RETURN BID IN DUPLICATE WITH DUPLICATE DESCRIPTIVE LITERATURE
FOR BID RESULTS, ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE WITH BID

BID DEPOSIT REQUIREMENTS: 5% OF BID AMOUNT

Deposit shall mean cash, cashier's check or corporate surety bond payable to or in favor of the City of Duluth.

A PERFORMANCE BOND AND A PAYMENT BOND shall be required of the successful bidder, BOTH in the full amount of the bid.

INSURANCE CERTIFICATE required per attached requirements.

Designated F.O.B. Point: Jobsite

Tax: Federal Excise Tax Exemption
Account No. 41-74-0056 K

Vendor Email Address: _____ FREIGHT CHARGE \$ N/A

NAME: _____ TOTAL BID PRICE # See attached.

ADDR1: _____ TO INCLUDE ANY ADDITIONAL PAGES.

ADDR2: _____

ADDR3: _____

BY: _____ PAYMENT TERMS \$ N/A

(Print) (Title) F.O.B. POINT Duluth Airport

(Signature) (Tele. #) DELIVERY DATE N/A

The City of Duluth is an Equal Opportunity Employer.

(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
Bid Package 1
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.
- *Work Scope 2.10 bidders: You will need to carry forward your totals from the Work Scope 2.10 Schedule to Page 2 of the Bid Form under "Base Bid for Work Scope No. 2.10".*

DULUTH INTERNATIONAL AIRPORT
NEW PASSENGER TERMINAL
BID PACKAGE 1
COMPILATION SET

SECTION 00305 - 1

00305 - BID FORM

- 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.

1. Base Bid for Work Scope No. 2.10 Title Civil and Site Electrical

Bid Amount: _____ \$ _____

Add Alternate No. 1 \$ _____

Add Alternate No. 2: \$ _____

Total Bid Amount: \$ _____

2. Base Bid for Work Scope No. 3.10 Title Structural Concrete

Bid Amount: _____ \$ _____

3. Base Bid for Work Scope No. 4.10 Title Masonry

Bid Amount: _____ \$ _____

4. Base Bid for Work Scope No. 5.10 Title Structural/Miscellaneous Steel

Bid Amount: _____ \$ _____

5. Base Bid for Work Scope No. 5.11 Title Metal Framing

Bid Amount: _____ \$ _____

6. Base Bid for Work Scope No. 7.10 Title Metal Panels

Bid Amount: _____ \$ _____

7. Base Bid for Work Scope No. 7.11 Title EPDM Roof

Bid Amount: _____ \$ _____

8. Base Bid for Work Scope No. 8.10 Title Curtain Wall

Bid Amount: _____ \$ _____

9. Base Bid for Work Scope No. 15.10 Title Mechanical (Below Grade)

Bid Amount: _____ \$ _____

10. Base Bid for Work Scope No. 16.10 Title Electrical (Below Grade)

Bid Amount: _____ \$ _____

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: _____

Combined Bid Amount: _____ \$ _____

Unit Prices:

Refer to Section 01270 for complete description of Unit Prices.

		ADD	DEDUCT
Unit Price No. <u>1</u>	to Work Scope <u>3.10</u>	\$ _____ / _____	\$ _____ / _____
Unit Price No. <u>2</u>	to Work Scope <u>3.10</u>	\$ _____ / _____	\$ _____ / _____
Unit Price No. <u>3</u>	to Work Scope <u>5.10</u>	\$ _____ / _____	\$ _____ / _____
Unit Price No. _____	to Work Scope _____	\$ _____ / _____	\$ _____ / _____
Unit Price No. _____	to Work Scope _____	\$ _____ / _____	\$ _____ / _____

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

<u>Addenda No.</u>	<u>Dated</u>	<u>Addenda No.</u>	<u>Dated</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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, Labor and Material Payment Bond, and proof of insurance coverage, all within 10 days after notice of acceptance of this Bid.

DULUTH INTERNATIONAL AIRPORT
 NEW PASSENGER TERMINAL
 BID PACKAGE 1
 COMPILATION SET

SECTION 00305 - 3

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

City of Duluth Purchasing Division

General Specifications

The word "City" used in these specifications shall mean the city of Duluth and/or its Authorities.

1. Instruction to Bidders:

- A. All bids must be completed in a non-erasable format on the form provided by city of Duluth, errors are to be crossed out and initialed.
- B. All bids must be enclosed in a sealed envelope.
- C. The enclosed blue and white sticker must be placed on the outside of envelope.
- D. The bid envelope shall be addressed to the city of Duluth, Purchasing Division, Room 100 City Hall, Duluth, Minnesota 55802.

2. Non-Collusion Clause:

Vendor, their agent/employee hereby agree to comply and fully perform in accordance with the law and state that they have not, directly or indirectly, entered into an agreement or understanding, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the proposal submitted with respect to the above-referenced invitation to bid. Vendor fully acknowledges that such an act of non-compliance may be deemed unlawful and would be considered a violation of the law and subject to prosecution.

3. Award of Contract - Rejection of Bids:

The Contract will be awarded to the responsible bidder submitting the lowest bid complying with the conditions of the Invitation for bids. The bidders, to whom the award is made, will be notified at the earliest possible date. The city of Duluth, however, reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in its interest.

5. Obligation of Bidder:

At the time of the opening of bids, each bidder will be presumed to have read and to be thoroughly familiar with the plans, specifications and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect to their bid.

6. Liquidated Damages for Failure to Enter into Contract:

The successful bidder, upon their failure or refusal to accept a purchase order or execute and deliver the contract and bonds required within 10 days after receipt of a notice of the acceptance of their bid, shall forfeit to the city, as liquidated damages for such failure or refusal, the security deposited with their bid (if required).

7. Completion of Bid Request:

The city may consider as irregular any bid on which there is an alteration of or departure from the Bid Form hereto attached and at its option may reject the same.

8. E.E.O. Regulations:

Contractor will be required to comply with all applicable Equal Employment Opportunity (E.E.O.) laws and regulations. Affirmative action must be taken to insure that the employees and applicants for employment are not discriminated against because of their race, color, creed, sex or national origin.

The city of Duluth is an equal opportunity employer.

9. Participation:

This document is intended to serve the city of Duluth, its Agents and Authorities. Each authority may issue their own purchase order and will be responsible for it. The City of Duluth Authorities are as follows:

- 1. Duluth Airport Authority
- 2. Spirit Mountain Recreational Area Authority
- 3. Duluth Entertainment and Convention Center
- 4. Duluth Transit Authority
- 5. Duluth Economic Development Authority
- 6. Duluth Housing and Redevelopment Authority

The city has a cooperative purchasing agreement with St. Louis county allowing the county to purchase from this bid when requested. St. Louis county will issue and be responsible for its own purchase orders.

10. Qualifications of Bidder

The city may make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the city all such information and data for this purpose as the city may request. The city reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the city that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

11. Addenda and Interpretations

Responses to general questions and clarifications of bids may be made at the discretion of the city. However, no interpretation of the meaning of the specifications or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing and delivered or sent by facsimile to the city purchasing agent or the buyer shown on the bid request, Duluth, Minnesota 55802, and to be given consideration must be received at least five days prior to the date fixed for the opening of bids.

12. Award of Contract - Rejection of Bids:

In determining the successful bidder, there will be considered in addition to price (per Ordinance 7050):

- A. The ability, capacity and skill of the bidder to perform the contract.

- B. The character, integrity, reputation, judgement, experience and efficiency of the bidder.
- C. The quality of performance of previous contract.

- D. The sufficiency of the financial resources, equipment available and ability of the bidder to perform the contract.

13. Quantities:

The city reserves the right to increase or decrease the quantities of items on this bid as required. Any exception to this provision must be noted by the vendor in its bid or proposal.

14. Wages and Salaries:

- A. Attention of bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and salary rates specified in the contract documents and the conditions of employment with respect to certain categories and classifications of employees for all "Public Works" type projects estimated to exceed \$2,000.

B. The rates of pay set forth under General Conditions are the minimums to be paid during the life of the contract. It is therefore the responsibility of bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensations, health and welfare contributions, labor supply, and prospective changes or adjustments of rates.

15. Validity of Bids: 90

All bids shall be valid for 60 days from the date of bid opening, unless an other period is noted in bid documents or if an extension is agreed upon, in writing prior to the end of the 60 day period.

16. Facsimile Bids: 90

Facsimile bids are acceptable if: bids are received at the designated facsimile number prior to the scheduled bid opening and an original copy of the bid, identical to the "faxed" bid, is received within 48 hours of the bid opening. Facsimile bid deposits are not acceptable. The city shall endeavor to keep bids confidential, but will accept no responsibility for the confidentiality of facsimile bids. All bids or proposals returned by facsimile are understood to incorporate these general specifications.

17. Insurance:

All vendors doing work on city property, except vendors making routine deliveries, shall submit an insurance certificate indicating insurance coverage as per current city requirements.

18. Website:

ci.duluth.mn.us/city/service/purchasing/index.htm

00500 - LIST OF CONTRACT FORMS

1. FORMS INCLUDED

A. The following is a list of forms and standards applicable to this Project.

- Bid Form: As bound in this Project Manual. Submit exact form in duplicate. Use of Bid Form Packet is mandatory.
- Bid Bond Form: The standard form of a surety, authorized to do business in Minnesota and meeting all requirements, will be acceptable. Standard AIA Document A-310 will be acceptable. Submit with Bid with proper Power of Attorney certificate and acknowledgment. See attached.
- Agreement: The Contract form as specified in Contract Documents. See attached.
- Performance/Payment Bond: Forms shall be submitted by awarded contractor using the Duluth Airport Authority forms as specified in the Contract Documents. See attached. Submit in two copies, with proper Power of Attorney and acknowledgment upon execution of contract agreement with Owner.

END OF SECTION 00500

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

Bond No. _____

KNOW ALL MEN BY THESE PRESENTS, that we _____
(Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and _____
(Here insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of _____
as Surety, hereinafter called the Surety, are held and firmly bound unto _____
(Here insert full name and address or legal title of Owner)

as Obligee, hereinafter called Obligee, in the sum of _____
Dollars (\$ _____).

For the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Project No.: _____
(Here insert full name, address, and description of project)

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____, 20____.

(Witness)

{ _____ (Principal) _____ (Seal)

(Title)

(Witness)

{ _____ (Surety) _____ (Seal)

(Title)

CONTRACT

"CONTRACTOR NAME"

NEW PASSENGER TERMINAL

"Duluth International Airport Project Name"

FAA AIP No. 3-27-0024-48-10

Mn/DOT Project No. 6901-162; 6901-165; 6901-166

THIS AGREEMENT is made and is in effect as of this ____ day of _____, 2010, by and between the Duluth Airport Authority, (the "OWNER") and "_____", (the "CONTRACTOR").

THE PARTIES AGREE AS FOLLOWS: The Contractor, for and in consideration of the mutual promises contained herein, and the payment to Contractor of amount not to exceed _____

"CONTRACT AMOUNT IN WORDS" \$ _____ "CONTRACT AMOUNT IN NUMBERS"

based on the Contractor's bid, dated June 17, 2010, which is hereby made a part of this contract and appended hereto as Exhibit A, agrees to competently perform the various items of work and construct the projects therein indicated at Duluth International Airport (the "Airport") in accordance with the contract documents hereinafter referred to as Exhibit B dated _____."DATE

OF DOCUMENTS"

Said Exhibit B is hereby made a part of and basis of this agreement, and a true copy of said Exhibit B is now on file in the office of the Owner.

The parties further agree as follows:

1. That in consideration of the foregoing, the Owner hereby agrees to pay to the Contractor, promptly and according to the requirements of the specifications, the amount set forth above subject to the conditions as set forth in Exhibit A and Exhibit B.

2. That it is understood that the parties named herein are the only persons interested in this contract as principals. The parties do not intend to create any third party beneficiaries to this contract. No employee or agent of contractor shall be an employee or agent of Owner for any purpose.
3. That the Contractor has examined the site of the proposed work, plans and specifications, special provisions, and contract documents in order that the Contractor might become familiar with the character, quality, and quantity of the work to be performed, the materials to be furnished and the requirements of the specification, special provisions and contract documents.
4. That the Contractor certifies to be in compliance with all Human Rights, Affirmative Action and Equal Opportunity Requirements of state, federal, or local laws, all applicable drug and alcohol regulations, including the DAA drug and alcohol policy, and all other laws, rules, and regulations as are included in Exhibit B or are otherwise applicable to Contractor. Violation of any of these rules is grounds to void this contract.
5. That in the event any surety upon any bond furnished in connection with this contract becomes unacceptable to the Owner, or if any such surety shall fail to furnish reports as to its financial condition from time to time as requested by the Owner, the Contractor agrees to furnish promptly such additional surety as may be required from time to time to protect the interests of the Owner or of persons supplying labor or materials in the prosecution of the work contemplated by the contract.
6. That the Contractor shall not commence any work to be performed under this contract until the Contractor has obtained from responsible insurance companies all insurance required as set forth Part Five Supplementary General Conditions as contained in Exhibit B. The Duluth Airport Authority and the City of Duluth shall

be named as additional insureds on contractor's certificate of insurance specific to commercial general liability and automobile liability coverage. The Contractor shall maintain this insurance in full force and effect until the work to be performed under this Contract has been accepted by the Owner.

7. That should it become necessary to change any feature of the project from the specifications of Exhibit B, this shall be done by written and dated supplemental agreement (change order). The Contractor shall not start working on any work requiring a supplemental agreement until the written agreement setting forth the adjusted prices shall be dated and executed by the Owner and the Contractor.
8. That the Contractor at all times shall observe and comply with all Federal, State, Territory or Possessions, and local laws, codes, ordinances, and regulations in any manner affecting the conduct of the work, including MSA 471.425 on prompt payment to subcontractors, and the Contractor and his surety shall indemnify and hold harmless the Owner and the City from and against all claims, suits, liabilities, judgments, costs, damages and expenses, including reasonable attorneys' fees, which may accrue against, be charged to, or recovered from Owner or the City by reason of, or on account of, any personal injuries, property damage or other claim for damages or performance, arising from the use of, or occupancy of, performance of work or operations at the Airport by Contractor, and all subcontractors, officers, agents, or employees, and on ten (10) days written notice from the Owner, the Contractor will appear and defend all lawsuits against said Owner or City growing out of said injuries or damages. The provisions of this paragraph apply to any claim, for response costs, contribution, or damages, which arise out of the release or threatened release of a pollutant, contaminant, or hazardous substance.

9. That it is further understood and agreed by the parties to this contract that the work specified herein shall be commenced in accordance with the Schematic Construction Sequencing as listed in the Bid Documents, sheet C050. The time of commencing and completion of said work is the essence of this Contract and the contractor shall complete all work in accordance with the Schematic Phasing Schedule. Liquidated damages shall be assessed as listed in the Contract Documents and Specifications: General Provisions, 80-08 Failure to Complete Work on Time on page GP-38-39 (\$3,000.00 per Calendar Day).
10. The books, records, documents and accounting procedures and practices of the Contractor as they relate to this Agreement are subject to examination of the Owner, the City, and either the Legislative Auditor or the State Auditor, as appropriate, for a period of six (6) years following termination or expiration of this Agreement.
11. Kraus-Anderson Construction Company as the Construction Manager and Reynolds Smith and Hills, Inc. as the architect/engineer, will provide administration of this contract and will be the Owner's representatives for purposes of this contract; provided, however, that the Owner's Executive Director will be the Owner's representative for purposes of Paragraph 13.
12. The Contractor shall not contract with a proposed person or entity to whom the Owner reasonably objects.
13. In addition to the events of default set forth in Paragraph a through l in Section 80-09 of Exhibit B, it shall be deemed to be an event of default by the Contractor if the Contractor fails to observe or perform any of the terms, provisions, conditions, covenants or agreements required to be observed or performed under this Contract or so fails to administer the work as to endanger the performance of this Contract.

The Owner's Executive Director shall have the discretion to implement one or more of the following remedies in the event of a default:

- A. Terminate this Agreement immediately upon written notice.
- B. Provide Contractor with written notice of default setting forth a time period within which to cure the default, and if such default is not cured to the satisfaction of the Executive Director within said time period, the Executive Director may immediately terminate this Contract.
- C. Take the prosecution of the work out of the hands of the Contractor or surety, appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable, enter into an agreement(s) for the completion of said Contract according to the terms and provisions thereof, and/or use such other methods as in the opinion of the Executive Director 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 contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the Contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.
- D. Seek and be entitled to injunctive or declaratory relief to prevent violation of the terms and conditions of this Agreement or compel Contractor's performance of its obligations hereunder.
- E. Seek such other legal or equitable relief as a court of competent jurisdiction may determine is available to Owner.

The remedies provided under this Contract shall be deemed to be cumulative and non-exclusive and the election of one remedy shall not be deemed to be the waiver of any other remedy with regard to any event of default under this Contract.

To the extent there is a conflict between this Paragraph 13 and Section 80-09 of Exhibit B, this Paragraph 13 shall be deemed controlling.

14. Any waiver by any party of any provision of this contract shall not imply a subsequent waiver of that or any other provision.
15. This contract is made in the State of Minnesota and shall be construed and interpreted in accordance with the laws of the State of Minnesota.
16. Notice to the Owner or the Contractor provided for herein shall be sufficient if sent by the regular United States mail, postage prepaid, addressed to the Owner as follows: Duluth Airport Authority, 4701 Grinden Dr., Duluth, MN 55811 and addressed to the Contractor as follows: _____

"NAME AND COMPLETE ADDRESS OF CONTRACTOR" or to such other respective persons or addresses as the parties may designate to each other in writing from time to time.

17. This contract, including all attachments, constitutes the entire contract between the Owner and the Contractor and supersedes all prior written oral agreements and negotiations between the parties relating to the subject matter hereto.
18. The Contractor represents to the Owner that the officers of the Company who executed this Agreement on its behalf are fully authorized to do so, and that this Agreement when thus executed by said officers of the Company on its behalf will constitute and be

the binding obligation and agreement of the Company in
accordance with the terms and conditions hereof.

The parties hereto have duly executed this Agreement for the purpose herein
expressed this _____ day of _____, 2010.

DULUTH AIRPORT AUTHORITY

"NAME OF CONTRACTOR"

By _____
John M. Eagleton
President

By _____
NAME: _____
TITLE: _____

By _____
Michael G. Lundstrom
Secretary

By _____
NAME: _____
TITLE: _____

Approved as to form:

Joan Christensen
Assistant City Attorney



DULUTH AIRPORT AUTHORITY

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we:

(contractor's name)

(hereinafter called the "Contractor") located at: _____

(contractor's address)

and _____
(surety's name)

(a corporation holding a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety, hereinafter called the "Surety") located at:

(surety's address)

are held and firmly bound unto the Duluth Airport Authority (hereinafter called the "Owner"), for the benefit of persons furnishing labor and materials for the contract set forth below, in the penal sum of _____ Dollars (\$_____) for the payment of which we bind ourselves, our heirs, executors and administrators, successors and assigns, for the payment of all labor and materials supplied by any person in the performance of a written contract for the _____ purpose _____ of:

according to plans, profiles, and specifications thereto annexed. A copy of that contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH That,

- A) If the Contractor shall make payments, as they may become due, to all persons supplying "labor and materials," as defined in Minnesota Statutes Section 574.26, used directly or indirectly by the Contractor, or his Subcontractor, in the prosecution of the work provided for in the contract,
- B) If the Contractor shall indemnify the owner or other claimant for all costs that may accrue on account of the enforcing of the terms of the bond, if action is brought on the bond, including reasonable attorney's fees, in any case where such action is successfully maintained,

Then, this obligation shall be void; otherwise it shall remain in full force and effect.

And, the said Contractor and Surety agree that in accordance with Minnesota Statutes Section 574.26 not only said Duluth Airport Authority, but any person furnishing "labor and materials," as defined in Minnesota Statutes 574.26, may sue on this bond for their use on account of any sums due them for anything so furnished.

The Contractor and the Sureties do hereby expressly waive any objection that might be interposed as to the right of the Owner to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either and any of them might interpose to an action brought hereon by any person, firm, or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed, rendered or furnished as aforesaid, upon the ground that there is no law authorizing the Owner to require the foregoing provisions to be placed in this bond.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this bond shall in no way be impaired or affected by any extension of time, modification, omission, addition or change in or to the contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any work to be performed, or of any moneys due or to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors and other transferees, shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Contractor.

Signed this _____ day of _____, 20____.

Name of Principal

By

Name of Surety

By _____
Attorney-in-Fact

ACKNOWLEDGEMENTS

State of Minnesota)

) ss. Principal – Individual

County of St. Louis)

This instrument was acknowledged before me on _____
by _____.

Notary Seal

Notary Public

State of Minnesota)

) ss. Principal – Corporate or Partnership

County of St. Louis)

This instrument was acknowledged before me on _____
by _____ as _____
of _____.

Notary Seal

Notary Public

State of Minnesota)

) ss. Surety

County of St. Louis)

Be It Known, That on this _____ day of _____ A. D., 20____, came before me personally
_____, to me personally known, who being
by me duly sworn, did say that he/she is the _____ (title)
of _____
the above named corporation which executed the foregoing bond as surety; that the seal affixed to the foregoing
instrument is the corporate seal of said corporation; that said instrument was executed in behalf of said corporation, by
authority of its Board of Directors; that said corporation hold a certificate of the Insurance Commissioner of the State of
Minnesota showing that it is authorized to contract as a surety; and said _____
acknowledged said instrument to be the free act and deed of said corporation.

Notary Seal

Notary Public

APPROVED AS TO FORM, CORRECTNESS AND VALIDTY HEREOF

Dated this _____ day of _____, 20 ____ Dated this _____ day of _____, 20 ____

Finance Director Duluth MN

Assistant City Attorney, Duluth MN



DULUTH AIRPORT AUTHORITY
PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we:

(contractor's name)

(hereinafter called the "Contractor") located at: _____

(contractor's address)

and _____
(surety's name)

(a corporation holding a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety, hereinafter called the "Surety") located at:

(surety's address)

are held and firmly bound unto the Duluth Airport Authority (hereinafter called the "Owner"), in the penal sum of _____ Dollars (\$_____) for the payment of which we bind ourselves, our heirs, executors and administrators, successors and assigns, for the faithful performance of a written contract for the purpose of:

according to plans, profiles, and specifications thereto annexed. A copy of that contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH That,

- A) If the Contractor shall in all respects comply with the terms and conditions of the Contract (which includes the contract documents) and such alterations as may be made in said contract as documents therein provide for, and shall complete the contract in accordance with its terms,
- B) If the Contractor shall indemnify, defend and save harmless the owner from all costs, expenses, damages, injury or conduct, want or care or skill, negligence or default, including patent infringement on the part of the Contractor, agents or employees, in the execution or performance of the contract,
- C) If the Contractor shall indemnify the owner for all costs that may accrue on account of the enforcing of the terms of the bond, if action is brought on the bond, including reasonable attorney's fees, in any case where such action is successfully maintained,

D) If the Contractor shall comply with all laws pertaining to doing the work under the contract,

Then, this obligation shall be void; the Contractor and Surety jointly and severally agree to pay to the Owner any difference between the sum to which the Contractor will be entitled on the completion of the contract and that which the Owner may be obliged to pay for the completion of the work by contract or otherwise, and any damages, direct or indirect, or consequential, which the Owner may sustain on account of the work, or on account of the failure of the Contractor to properly and in all things, keep and execute all of the provisions of the Contract, provided however that Surety's liability to pay damages is limited to the amount of the Performance Bond as set forth above.

And, the said Contractor and Surety hereby further bind themselves, their successors, executors, administrators and assigns, jointly and severally, that they will employ and fully protect the said Owner against and will pay any and all amounts, damages, costs and judgements which may be recovered against or which the Owner may be called upon to pay to any person or corporation by reason of any damage arising from the performance of said work, repair or maintenance thereof, or the manner of doing the same, or the neglect of the said Contractor or his agents or servants, or the improper performance of the said work by the Contractor or his agents or servants, or the infringements of any patent rights by reason of the use of any material furnished or work done, as aforesaid, or otherwise. For the purpose of this paragraph, a subcontractor shall be deemed to be the agent or employee of the Contractor to the extent of his subcontract.

The Contractor and the Sureties do hereby expressly waive any objection that might be interposed as to the right of the Owner to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either and any of them might interpose to an action brought hereon by any person, firm, or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed, rendered or furnished as aforesaid, upon the ground that there is no law authorizing the Owner to require the foregoing provisions to be placed in this bond.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this bond shall in no way be impaired or affected by any extension of time, modification, omission, addition or change in or to the contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any work to be performed, or of any moneys due or to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors and other transferees, shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Contractor.

Signed this _____ day of _____, 20____.

Name of Principal

By

Name of Surety

By _____
Attorney-in-Fact

ACKNOWLEDGEMENTS

State of Minnesota)
) ss. Principal – Individual
County of St. Louis)

This instrument was acknowledged before me on _____
by _____.

Notary Seal

Notary Public

State of Minnesota)
) ss. Principal – Corporate or Partnership
County of St. Louis)

This instrument was acknowledged before me on _____
by _____ as _____
of _____.

Notary Seal

Notary Public

State of Minnesota)
) ss. Surety
County of St. Louis)

Be It Known, That on this _____ day of _____ A. D., 20____, came before me personally
_____, to me personally known, who being
by me duly sworn, did say that he/she is the _____ (title) of

the above named corporation which executed the foregoing bond as surety; that the seal affixed to the foregoing
instrument is the corporate seal of said corporation; that said instrument was executed in behalf of said corporation, by
authority of its Board of Directors; that said corporation hold a certificate of the Insurance Commissioner of the State of
Minnesota showing that it is authorized to contract as a surety; and said _____
acknowledged said instrument to be the free act and deed of said corporation.

Notary Seal

Notary Public

APPROVED AS TO FORM, CORRECTNESS AND VALIDTY HEREOF

Dated this _____ day of _____, 20 ____

Dated this _____ day of _____, 20 ____

Finance Director, Duluth MN

Assistant City Attorney, Duluth MN

AFFIDAVIT AND INFORMATION REQUIRED OF BIDDERS

Affidavit of Non-Collusion:

I hereby swear (or affirm) under penalty of perjury:

- 1) That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);
- 2) That the attached bid or bids have been arrived at by the bidder independently and have been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or materials, supplied, equipment or services described in the invitation to bid, designed to limit independent bidding or competition;
- 3) That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids; and
- 4) That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____

Firm Name: _____

Subscribed and sworn to me before this ____ day of _____, _____

NOTARY PUBLIC _____

My commission expires: _____

Bidder's E.I. Number _____

(Number used on employer's quarterly Federal Tax return)

DATA FOR LABOR COST BIDDING

Project No.: 03-27-0024-48-10

NEW PASSENGER TERMINAL BID PACKAGE 1 – SITEWORK, STRUCTURE, ENCLOSURE

This **project is funded** by (bold/underline those which apply):

City of Duluth

Federal Government

HUD/CDBG - see Section 10 of Supplementary
General Conditions, Part II

State of Minnesota

The **base workweek** may be (bold/underline those which apply):

Five 8-hour days

or

Four 10-hour days

Each certified payroll must indicate the base workweek on the accompanying Statement of Compliance form.

OVERTIME REQUIREMENTS:

For City, State, and Federal funded projects, overtime must be paid on daily hours worked in excess of the base daily hours. Contractors (including sub-contractors) are not allowed to pay overtime solely on hours in excess of forty per week.

HUD projects, however, do allow payment of overtime after forty hours per week—this is the only exception.

WAGE RATES

When both State of Minnesota and Federal Government (general decision) wage rates are included in a contract, the higher of the two rates for any classification must be paid.

State of Minnesota prevailing wages typically list two rates for each classification with two effective dates. Should any City of Duluth contract continue to and past the second effective date, that rate and fringe benefit will be in effect through the remainder of the project.

00829 - PROJECT LABOR AGREEMENT

1. PROJECT LABOR AGREEMENT

- A. Each contractor and subcontractor, having submitted a bid on this project, certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the project. In the interest of such harmony and the long-term supply of skilled manpower, each successful contractor and any and all levels of subcontractors, as a condition of being awarded a contract or subcontract, will agree to abide by the provisions of the Project Labor Agreement as made as of the 17th day of May, 2010, by and between Owner, Kraus-Anderson® Construction Company (Construction Manager for new construction projects in current overall construction program), and To Be Determined and its affiliated local unions, and will be bound by the provisions of that agreement in the same manner as any other provision of the Contract. A copy of the draft agreement is available for inspection at the office of the Construction Manager, Kraus-Anderson® Construction Company, 3716 Oneota Street, Duluth, Minnesota, and is included by reference in these Contract Documents as fully as if herein set forth.

END OF SECTION 00829

PROJECT LABOR AGREEMENT

NO STRIKE, NO LOCKOUT

PUBLIC SECTOR

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AGREEMENT

This Project Labor Agreement (hereinafter, the "Agreement") is entered into effective the 1st day of July, 2009, by and between the various contractors engaged in the construction of facilities to be known as the New Duluth International Airport Passenger Terminal Project (hereinafter "Project"). The parties are as follows: The Duluth Building and Construction Trades Council, on behalf of its affiliated Local Unions (hereinafter "Union" or "Unions"), the Duluth Airport Authority, (hereinafter "Owner") and Kraus-Anderson Construction Company (insert contractor), (hereinafter "Construction Manager", "Contractor" and "Contractors").

It is understood by the parties to this Agreement that it is the policy of the Owner that the construction work covered by this Agreement shall be contracted to Contractors who agree to be bound by the terms of this Agreement. As a condition of working on the Project, all contractors of whatever tier shall execute this agreement for the purpose of covering all work that falls within the scope of Agreement. This Project Labor Agreement is a material term of the bid specifications for the Project and therefore, regardless of whether a Contractor executes this Agreement, by virtue of the Owner and/or Construction Manager accepting the bid offer of the Contractor, a Contractor who performs work on this Project is bound to this Project Labor Agreement regardless of their execution of this Agreement. The Construction Manager shall monitor compliance with this Agreement by all Contractors who through their execution of this Agreement, together with their sub-contractors, have become bound hereto.

The term "Contractor" shall include all Contractors and subcontractors of whatever tier engaged in on-site construction work within the scope of this Agreement.

The Union and all signatory Contractors agree to abide by the terms and conditions contained in this Agreement with respect to the administration of the Agreement by the Owner and the performance of the construction by the Contractor of the Project. This Agreement represents the complete understanding of the parties with respect to this Project Labor Agreement, and it is further understood that no Contractor party is required to sign any local area agreement as a condition of performing work within the scope of this Agreement. No practice, understanding or agreement between a Contractor and a Union party which is not explicitly set forth in this Agreement shall be binding on any other party unless endorsed in writing by the Project Contractor.

ARTICLE I - PURPOSE

The New Duluth International Airport Passenger Terminal Project, an undertaking of the Owner, is a public project which will employ numbers of skilled and unskilled workers. Construction of the Project will entail utilization of the construction industry in an area having multiple labor contracts and employer associations. Consequently, conflicts within labor-management relations could cause delay or disruption of the efficient completion of the project unless maximum cooperation of all segments of the construction industry is obtained. This Agreement is to establish as the minimum standards on the Project the hours and working conditions as those prevailing for the largest number of workers engaged in the same classes of work within the area.

It is in the public interest that the Project progress and be completed in an expeditious and efficient manner, free of disruption or delay of any kind. Therefore, it is essential to secure optimum productivity and to eliminate any delays in the work. In recognition of the special needs of this Project and to maintain a spirit of harmony, labor-management peace and stability during the term of this Project Labor Agreement, the parties agree to establish effective and binding methods for the settlement of all misunderstandings, disputes or grievances which may arise. Therefore, the Unions agree not to engage in any strike, slowdown or interruption of work and the Contractor agrees not to engage in any lockout.

ARTICLE II - SCOPE OF THE AGREEMENT

Section 1. This Agreement, hereinafter designated as the "Project Labor Agreement" or "Agreement," shall apply and is limited to all construction work included in all Bid Categories for the Project, under the direction of the signatory Contractors and performed by those Contractor(s) of whatever tier which have contracts awarded for such work on or after the effective date of this Agreement with regard to the Project.

Such Project is generally described as the construction of: New Duluth International Airport Passenger Terminal Project ("Project").

Section 2. The Contractor shall ensure that all direct subcontractors of a Contractor, of whatever tier, who have been awarded contracts for work covered by this Agreement on or after the effective date of this Agreement shall be required to accept and be bound by the terms and conditions of the Project Labor Agreement.

Section 3. The provisions of this Project Labor Agreement shall apply to all craft employees represented by any Union listed in Schedule A hereto attached and shall not apply to other field personnel or managerial or supervisory employees as defined by the National Labor Relations Act.

Section 4. All employees covered by this Agreement shall be classified in accordance with work performed and paid the base hourly wage rates for those classifications as specified in the attached Schedule A.

Any contractor performing work on the project who is not party to a Local Area Labor Agreement (PLA Contractor) agrees to install the basic hourly wage rates, hours, working conditions, referral procedures and all other terms as fully set forth in the Local Area Agreements negotiated with the Local Unions set forth in Exhibit A work on the Project.

Section 5. The Contractors agree to pay contributions to the established employee benefit funds in the amounts designated in the appropriate Schedule A.

Contractors that are not signatory to a collective bargaining agreement beyond the scope of this Agreement ("PLA contractor") may select to participate in the legally established industry health reimbursement arrangement ("HRA") plan, in lieu of contributing to the respective bona fide benefit funds as designated in Schedule A. The amount of the contribution is based on the difference between the contribution amount of the bona fide Schedule A benefit funds and the cost of the PLA contractor's bona fide non-discretionary plans. Contributions must be made on behalf of named employees. Participating contractors will submit to the Trustees of the HRA trust and plan a copy of their plan, summary plan description, and the premium structure for workers covered under the PLA contractor's bona fide, non-discretionary plans. The value of the PLA contractor's benefit plans are subject to confirmation by the Trustees of the HRA trust and plan. This may include an independent audit according to a policy as established by the Trustees. Contractors are required to submit certified payroll reports to the Trustees or authorized administrator in order to confirm compliance with the terms of the HRA trust and plan.

The Contractors adopt and agree to be bound by the written terms of the legally-established Trust Agreements (or in lieu thereof, the aforementioned HRA plan and trust including any policies) specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds. The Contractors authorize the parties to such Trust Agreements to appoint trustees and successor trustees to administer the Trust funds and hereby ratify and accept the Trustees so appointed as if made by the Contractors.

Section 6. In the event of any conflict between any provisions of this Agreement and in the Local Area Agreements, the terms of this Agreement will be applied. In other words, where a subject covered by the provisions of this Project Labor Agreement is also covered by the Local Area Agreement the provisions of this Project Labor Agreement shall prevail. Where a subject is covered by the Local Area Agreement and not covered by this Project Labor Agreement, the Local Area Agreement provisions shall prevail.

Section 7. This Agreement shall only be binding on the signatory parties hereto and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party.

Section 8. This Agreement shall be limited to work historically recognized as construction work. Nothing contained herein shall be construed to prohibit, restrict, or interfere with the performance of any other operation, work or function which may occur in or around the Project site or be associated with the development of the Project, or with the ongoing operations of the Owner.

Section 9. It is understood that the liability of any Contractor and the liability of the separate Unions under this Agreement shall be several and not joint. The Union agrees that this Agreement does not have the effect of creating any joint employment status between or among Owner and any Contractor.

Section 10. All workers delivering fill, sand, gravel, crushed rock, transit/concrete mix, asphalt or other similar materials and all workers removing any materials from the construction site as required by the specifications are subject to the provisions of the Minnesota state prevailing wage law and are entitled to the appropriate area standard wage. For purposes of this contract, such materials are for specified future use and per Minnesota state prevailing wage law delivery and pick up of the above-listed materials constitutes incorporation.

ARTICLE III - UNION RECOGNITION AND REPRESENTATION

Section 1. The Contractor recognizes the Union as the sole and exclusive bargaining representative of all craft employees working on facilities within the scope of this Agreement.

Section 2. Authorized representatives of the Union shall have access to the Project, provided they do not interfere with the work of employees and further provided that such representatives fully comply with the posted visitor and security and safety rules of the Project.

ARTICLE IV - LABOR HARMONY CLAUSE

The contractor shall furnish labor that can work in harmony with all other elements of labor employed on the Project and shall submit a labor harmony plan to demonstrate how this will be done. "Harmony" shall include the provision of labor that will not, either directly or indirectly, cause or give rise to any work disruptions, slow downs, picketing, stoppages, or any violence or harm to any person or property while performing any work, or activities incidental thereto at the Project. The labor harmony plan should include the company's labor management policies, collective bargaining agreements if any and their expiration dates, past labor relations history, a listing of activities anticipated under this contract that may potentially cause friction with on-site workers, and procedures the company will undertake to eliminate this friction.

The contractor agrees that it shall require every lower-tier subcontractor to provide labor that will work in harmony with all other elements of labor employed in the work, and will include the provisions contained in the paragraph above, in every lower-tier subcontract let for work under this contract.

The requirement to provide labor that can work in harmony with all other elements of labor employed in the work throughout the contract performance is a material element of this contract. Failure by the contractor or any of its lower-tier subcontractors to comply with this requirement shall be deemed a material breach of the contract which will subject the contractor to all rights and remedies the Owner may have, including without limitation the right to terminate the contract.

ARTICLE V - WORK STOPPAGES AND LOCKOUTS

Section 1. There shall be no strike, picketing, work stoppages, slowdowns or other disruptive activity for any reason by the Union or employees against any Contractor covered under this Agreement, and there shall be no lockout by the Contractor. Failure of any Union or employee to cross any picket line established by any union, signatory or non-signatory, or any other organization, at or in proximity to the Project site is a violation of this Article.

Section 2. Any party alleging a breach of Section 1., of Article IV shall have the right to petition a court for temporary and permanent injunctive relief. The moving party need not show the existence of irreparable harm, and shall be required to post bond only to secure payment of court costs and attorney fees as may be awarded by the court.

ARTICLE VI - DISPUTES AND GRIEVANCES

Section 1. This Agreement is intended to provide close cooperation between management and labor. The Construction Manager/General Contractor and the Building and Construction Trades Council shall each assign a representative to this Project for the purpose of assisting the Local Unions, together with the Contractor, to complete the construction of the Project economically, efficiently, continuously and without interruption, delays or work stoppages.

Each Contractor shall hold a pre-job conference with the Union and Construction Manager/General Contractor to clear up any project question and work assignments in which there is thought to be a difference in opinion. Every effort will be made to hold such conference well in advance of actual work performance.

Section 2. The Contractor, Union, and employees collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of the work of the Project, and agree to resolve disputes over grievances in accordance with the arbitration provisions set forth in the Local Area Agreements in effect with the Unions listed in Schedule A attached hereto.

ARTICLE VII - JURISDICTIONAL DISPUTES

Section 1. There will be no strikes, work stoppages, slowdowns, or other disruptive activity arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted as assigned by the Contractor.

Section 2. Building construction work shall be assigned by the Contractor in accordance with the procedural rules of the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (hereinafter the "Plan"). Any jurisdictional dispute over the Contractor's assignment of work shall be settled in accordance with the provisions of the Plan.

Section 3. Where a jurisdictional dispute involves the International Brotherhood of Teamsters, it shall be referred for resolution to that International Union and the disputing International Union. The resolution of the dispute shall be reduced to writing, signed by the authorized representative of the International Unions and the Contractor. The assignments made by the Contractor shall be followed until such time as the dispute is resolved in accordance with this Section.

ARTICLE VIII - NO DISCRIMINATION

Section 1. The Contractor and Union agree that they will not discriminate against any employee or applicant for employment because of his or her membership or non-membership in a Union or based upon race, color, religion, sex, national origin or age in any manner prohibited by law or regulation.

Section 2. Any complaints regarding application of the provisions of Section 1., should be brought to the immediate attention of the involved Contractor for consideration and resolution.

Section 3. The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE IX - SAVINGS AND SEPARABILITY

It is not the intention of the parties to violate any laws governing the subject matter of this Agreement. The parties hereto agree that in the event any provisions of the Agreement are finally held or determined to be illegal or void as being in contravention of any applicable law, the remainder of the Agreement shall remain in full force and effect unless the part or parts so found to be void are wholly inseparable from the remaining portions of this Agreement. Further, the Contractor and Union agree that if and when any and all provisions of this Agreement are finally held or determined to be illegal or void by Court of competent jurisdiction, the parties will promptly enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the requirements of an applicable law and the intent of the parties hereto.

ARTICLE X - DURATION OF THE AGREEMENT

The Project Labor Agreement shall be effective July 1, 2009 and shall continue in effect for the duration of the Project construction work described in Article II hereof. Construction of any phase, portion, section or segment of the project shall be deemed complete when such phase, portion, section or segment has been turned over to the Owner and has received the final acceptance from the Owner's representative.

Since there are provisions herein for no strikes or lockouts in the event any changes are negotiated and implemented under a Local Area Agreement during the term of this Agreement, the Contractor agrees that, except as specified herein, such changes shall be recognized and shall apply retroactively to the termination date in the particular Local Agreement involved. Each Contractor which has a Local Agreement with a Union at the time that its contract at the project commences shall continue it in effect with each said Union so long as the Contractor remains on the project. In the event any such Local Area Agreement expires, the Contractor shall abide by all of the terms of the expired Local Agreement until agreement is reached on a new Local Agreement, with any changes being subject to the provisions of this Agreement.


The Union agrees that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity affecting the Project by any Union involved in the negotiation of a Local Area Agreement nor shall there be any lockout on this Project affecting the Union during the course of such negotiations.

ARTICLE XI – COUNTERPARTS

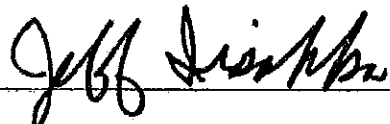
This Project Labor Agreement maybe executed in counterparts, each of which shall be deemed an original and all of which together shall constitute the binding and enforceable agreement of the parties hereto.

IN WITNESS WHEREOF the parties have entered into this Agreement to be effective as of the day and year above written.


Duluth Building and
Construction Trades Council

By 
Its President

Construction Manager

By 
Its VP-DIR. OF OPERATIONS

Owner

By 
Its President

By 
Its Secretary

AGREEMENT TO BE BOUND
PROJECT LABOR AGREEMENT

The undersigned EMPLOYER agrees that it has reviewed a copy of the Project Labor Agreement for the NEW DULUTH INTERNATIONAL AIRPORT TERMINAL Project located in Duluth, Minnesota and further agrees to become a party to and bound to the foregoing Agreement.

SIGNED FOR THE EMPLOYER:

Dated: _____

Company Name

Company Address

Phone No., Job Site and/or Office

Fax No.

By

Title

00830 - WAGE DETERMINATION SCHEDULE

GENERAL

1. WAGE RATE REQUIREMENTS

- A. Contractor and subcontractors shall be subject to payment of prevailing wage rates for highway and heavy and commercial construction determined for Project by Minnesota Department of Labor and Industry. A laborer or mechanic employed directly on the Project site by Contractor or any subcontractor, agent or other person doing or contracting to do all or a part of the Work on the Project shall not be paid a lesser wage rate than prevailing wage rate determined for same or most similar trade or occupation in the Wage Rate Determination Schedule. If a prevailing wage determination is not scheduled for a trade or classification, Contractor is not relieved from responsibility for paying the prevailing wage rate for trade in question. Additional classifications may develop between determinations by the Minnesota Department of Labor and Industry. Therefore, no inferences may be drawn from the omission of a classification which has local usage. Further, the Owner will not be liable for increased labor costs, or errors or changes to the rates or classifications.

2. PREVAILING WAGE RATE DETERMINATION

- A. A copy of the applicable Prevailing Wage Determination Schedule, as provided by the Minnesota Department of Labor and Industry is included for Contractor's reference.

3. POSTING OF WAGE DETERMINATION SCHEDULES

- A. The Contractor shall post and maintain at least one copy of the schedule of Prevailing Wage Determination Schedule in a conspicuous location on the construction site until substantial completion of Project.

4. ENFORCEMENT AND COMPLIANCE

- A. Contractor is solely responsible for enforcement of compliance with Wage Rate Determination Schedule for persons employed directly by Contractor and persons in the employ of its subcontractors, including settlement of claims made by persons found to have received wages lower than rate classification included in said schedule.

END OF SECTION 00830

March 16, 1998

PREVAILING WAGE STATEMENT

A recent unpublished decision of the Minnesota Court of Appeals affirms the authority of the Minnesota Commissioner of Transportation to enforce the Minnesota Prevailing Wage Law on State Highway projects on a case-by-case basis. International Union of Operations Engineers, Local 49 vs. Minnesota Department of Transportation, et. Al., Court of Appeals Case No. C6-97-1582, also see Minnesota Statutes §§177.43 and 177.44 (1996).

The Department of Transportation will enforce the Minnesota Prevailing Wage Law in a manner consistent with the Court of Appeals decision notwithstanding any prior notices on this subject. A copy of the Court of Appeals decision is available to anyone who is interested in reviewing it. Please call Charles Groshens, Labor Compliance Unit at (651) 297-5716 to receive a copy.

June 26, 2001

PREVAILING WAGE STATEMENT II

On June 18, 2001, the Minnesota Department of Labor & Industry (MnL&I) published, in the State Register, a notice of modification and adoption of the rules as published in State Register, Volume 25, Number 14, Pages 772-778, October 2, 2000 (25 SR 772). The rules were promulgated under Minnesota Administrative Procedures Act, Minnesota Statutes Chapter 14, and affect all projects funded in whole or part with state monies that are advertised for bid 5 working days after the publication date.

The rules give guidance on the application of the State Prevailing Wage Statute, Minnesota Statutes §177.41 to 177.44, as it applies to contractors' laborers and mechanics working at off-site facilities, truck drivers performing hauling activities for state funded projects, and the calculation and application of truck rental rates.

The truck rental rates, when certified by the MnL&I, will take effect on state funded projects advertised after the rates are published in the State Register. Mn/DOT will incorporate the truck rental rates into the appropriate contracts when published after they have been published in the State Register.

Copies of the rules can be received by contacting the MnL&I, Labor Standards, Erik Oelker at (651) 296-6452 or Mn/DOT Labor Compliance Office, Charles Groshens, at (651) 297-5716.

Reference:

5200.1105 Rental Rates for Trucks on Public Works Highway Projects
www.revisor.leg.state.mn.us/arule/5200/1105.html

5200.1106 Coverage of Prevailing Wage Law Under Minnesota Statutes 177.41-177.44
www.revisor.leg.state.mn.us/arule/5200/1106.html

Construction Type: **Highway**

Counties: Anoka, Benton, Chisago, Dakota, Hennepin, Ramsey, Scott, Sherburne, St Louis, Stearns, Washington & Wright Cos in MN.

HIGHWAY CONSTRUCTION PROJECTS

Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date
0	03/12/2010										
1	03/19/2010										
2	05/07/2010										

						<u>Rate</u>	<u>Fringe</u>
BRMN0001-015	05/01/2009	BENTON & STEARNS Cos	Cement Mason/Concrete Finisher			\$ 32.75	14.35

CARP0087-011 05/01/2009 ANOKA, CHISAGO, DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE, WASHINGTON & WRIGHT Cos
Carpenter & Piledrivermen \$ 31.37 16.10

CARP0361-014 05/01/2009 **ST LOUIS CO (DULUTH)** **Carpenter & Piledrivermen \$ 30.52 14.65**

CARP0361-015 05/01/2009 ST LOUIS CO
Carpenter & Piledrivermen Northern St. Louis County \$ 30.12 14.65 Southern St. Louis Co except Duluth \$ 30.12 14.65

CARP0930-006 05/01/2009 BENTON & STEARNS Cos Carpenter & Piledrivermen \$ 25.53 16.02

ELEC0160-001 05/01/2009 **Line Construction/Street Lighting**

Line Construction :	<u>Rate</u>	<u>Fringe</u>
(1) Lineman; Cable Splicer; Dynamiter; Special Equipment Operator; & Technician	\$ 34.82	29.5%+4.75
(2) Equipment Operator	\$ 29.95	29.5%+4.75
(3) Truck Driver; & Pole Treating Truck Driver	\$ 24.37	29.5%+4.75
(4) Groundman	\$ 23.33	29.5%+4.75
Line Clearance:	<u>Rate</u>	<u>Fringe</u>
(5) Tree Trimmer; Tractor	\$ 21.67	29.5%+4.75
(6) Groundman/Truck Driver	\$ 15.17	29.5%+4.75
(7) Groundman	\$ 14.09	29.5%+4.75

* ENGI0049-005 05/01/2009 **Power Equipment Operator**

AREA 1 (METRO): ANOKA, CHISAGO (S. of the northern boundary of T 34-N & that part consisting substantially of the cities of Thomson, Cloquet, Scanlon & Carlton), DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE (south of the northern boundary of T 33-N & E of the western boundary of R 27-W), **ST. LOUIS**, WASHINGTON & WRIGHT (east of & including Hwy #25) Cos

AREA 2 (EASTERN): BENTON (east of the western right of way of HWY #10), CHISAGO (remainder) SHERBURNE (remainder), STEARNS (east of the western right of way of Hwy #15), and WRIGHT (remainder) COs

AREA 3 (WESTERN): BENTON (remainder) and STEARNS (remainder) Cos

AREA 1:	AREA 2:	AREA 3:
GRP 1 \$ 31.57 15.25	GRP 1 \$ 29.11 15.25	GRP 1 \$ 24.45 15.25
GRP 2 \$ 30.57 15.25	GRP 2 \$ 28.11 15.25	GRP 2 \$ 23.45 15.25
GRP 3 \$ 30.02 15.25	GRP 3 \$ 27.66 15.25	GRP 3 \$ 22.52 15.25
GRP 4 \$ 29.72 15.25	GRP 4 \$ 27.36 15.25	GRP 4 \$ 22.21 15.25
GRP 5 \$ 26.68 15.25	GRP 5 \$ 24.79 15.25	GRP 5 \$ 20.50 15.25
GRP 6 \$ 25.47 15.25	GRP 6 \$ 23.92 15.25	GRP 6 \$ 19.90 15.25

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

Grp 1: All Truck and Crawler Cranes 40 tons and over doing pile driving, sheeting work; caisson work, rotary drilling and boring.

Grp 2: Helicopter Pilot; Concrete Pump; Crane with over 135' Boom, excluding jib; Dragline, Crawler, Hydraulic Backhoe and/or other similar equipment with shovel-type controls, 3 cubic yards and over; Grader or Motor Patrol, Finishing earthwork; bituminous Pile Driving; Tugboat Operator 100 hp and over.

Grp 3: Asphalt Bituminous Stabilizer Plant; Cableway; Concrete Mixer; Stationary Plant over 34E; Derrick (Guy or Stiffleg) (power) (skids or stationary); Dragline, Crawler, Hydraulic Backhoe and/or other similar equipment with shovel type controls, up to 3 cubic yards; Dredge Operator or Engineer; Dredge Operator (power) and Engineer; Front End Loader, 5 cu. yd and over; Locomotive Crane; Mechanic or Welder; Mixer (Paving); Concrete Paving Operator; Road Mole including power supply; Mucking Machine including mucking operations, Conway or similar type; Refrigeration Plant Engineer; Tandem Scraper; Tractor Boom type; Truck Crane; Crawler Crane; Tugboat 100 hp and over.

Grp 4: Air Track Rock Drill; Articulated Hauler Terex, Caterpillar or similar type; Automatic Road Machine (CMI or similar); Backfiller; Bituminous Paver; Screed; Bituminous Spreader & Finishing Operator (power); Bituminous Roller 8 Tons and over; Boom Truck (power operated boom); Brokk or R.T.C. 750 remote control or similar types with all attachments; Cat and Scraper; Cat Tractors with Rock Wagons or similar types; Challenger 75-D or 85-D when pulling scraper or bulldozer; Chip Harvester & Tree Cutter over 150 HP; Concrete Batch Plant; Concrete Distributor & Spreader Finishing Machine; Concrete Mixer on jobsite over 14S; Concrete Mobile; Crushing Plant (gravel & stone) or Gravel Washing, Crushing and Screening Plant; Curb Machine; Directional Boring Machine, all types; Dope Machine (pipeline); Drill Rigs; Heavy Rotary, Churn, or Cable Drill; Dual Tractor Operator; Elevating Grader; Engineer in charge of plant; Fork Lift or Straddle Carrier; Fork Lift or Lumber Stacker; Front End Loader over 1 cu. yd.; GPS Operator remote operating of equipment; Grader (Motor Patrol); Hoist Engineer (power); Hydraulic Tree Planter; Launcherman (Tankerman or Pilot); Lead Greaser; Locomotive, all types; Milling, Grinding and Planing Machine; Multiple Machines such as Air Compressors, Welding Machines, Generators, Pumps; Pavement Breaker or Tamping Machine (power driven); Mighty Mite or similar type; Payhauler or similar type; Pickup Sweeper, 1 cu. yd. and over Hopper capacity; Pipeline Wrapping; Cleaning or Bending Machine; Power Plant Engineer 100 KWH and over: Power Actuated Horizontal Boring Machine over 6"; Pugmill; Pumpcrete; Rubber-Tired Farm Tractor, Backhoe Attachment; Scraper up to 32 cubic yards; Scraper - Struck capacity 32 cu. yds and over; Self-Propelled Traveling Soil Stabilizer; Skid Steer Loader over one cubic yard with backhoe attachment; Slip Form (power driven, paving); Tie Tamper & Ballast Machine; Tractor, Bulldozer; Tractor over 50 HP with power take-off; Trenching Machine all utilities, excludes walk behind trencher; Tub Grinder-Morbark or similar type; Well Point Installation, Dismantling or Repair Mechanic.

Grp 5: Air Compressor Operator 600 CFM or over; Bituminous Roller Operator under 8 Tons; Bituminous Rubber Tired Roller; Longitudinal Float Operator, Joint Machine Operator and Spray Operator; Concrete Saw Operator (multiple blade) (power operated); Form Trench Digger (power); Front End Loader Operator, up to and including 1 cu yd; Injection Patching, Tack, Emulsion Aggregate Truck/PMI or similar; Guniting Operator Gunall; Hydraulic Log Splitter; Loader (Barber Greene or similar type); Post Hole Driving Machine, Post Hole Auger; Power Actuated Augers and Boring Machine; Power Actuated Jacks; Pump; Self-Propelled Chip Spreader

(Flaherty or similar); Sheep Foot Compactor with Blade 200 HP and over; Shouldering Machine(power) Apsco or similar type including self-propelled; sand & chip spreader; Skid Steer Operator up to 1 cu yd; Stump Chipper and Tree Chipper; Tractor, Bulldozer, 50 HP or less; Tree Farmer (a machine); Vibrating Extractor

Grp 6: Challenger 75-D or 85-D when pulling disk or roller; Conveyor; Dredge Deck Hand; Fireman or Tank Car Heater; Gravel Screening Plant (portable not crushing or washing); Greaser (Truck or Tractor); Leverman; Mechanic, Space Heater (temporary heat); Oiler (Power Shovel, Crane, Dragline); Power Sweeper; Rollers on gravel compaction; Self-Propelled Vibrating Packer (35 HP and over); Sheep Foot Rollers; Tractor Operator Wheel Type (over 50 HP)

*CRANE OVER 135' BOOM, EXCLUDING JIB - \$.25 PREMIUM; CRANE OVER 200' BOOM, EXCLUDING JIB - \$.50 PREMIUM

UNDERGROUND WORK: TUNNELS, SHAFTS, ETC. - \$.25 PREMIUM UNDER AIR PRESSURE - \$.50 PREMIUM

HAZARDOUS WASTE PROJECTS (PPE Required): LEVEL A - \$1.25 PREMIUM LEVEL B - \$.90 PREMIUM LEVEL C - \$.60 PREMIUM

IRON0512-003 05/01/2009 ANOKA, BENTON, CHISAGO, DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE, STEARNS, WASHINGTON & WRIGHT COS

Ironworker \$ 33.80 20.44

			<u>Rate</u>	<u>Fringe</u>
IRON0512-020 05/01/2009	ST. LOUIS CO	Ironworker	\$ 29.76	19.50

			<u>Rate</u>	<u>Fringe</u>
LABO0010-005 05/01/2008	Landscaper (Seeding, Sodding & Planting of evergreen & deciduous shrubs & trees)		\$ 16.26	9.68

* LABO0132-001 05/01/2008 ANOKA, BENTON, CHISAGO, DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE, STEARNS, WASHINGTON & WRIGHT COS

LABORER - UNDEFINED (Asbestos Abatement) \$ 28.11 10.57

LABO0563-005 05/01/2009

Laborers:

AREA 1:			AREA 2:			AREA 3:			AREA 4:		
GRP 1	\$ 27.72	12.01	GRP 1	\$ 27.14	11.52	GRP 1	\$ 26.10	12.56	GRP 1	\$ 23.16	11.37
GRP 2	\$ 27.92	12.01	GRP 2	\$ 27.34	11.52	GRP 2	\$ 26.30	12.56	GRP 2	\$ 23.36	11.37
GRP 3	\$ 28.07	12.01	GRP 3	\$ 27.49	11.52	GRP 3	\$ 26.45	12.56	GRP 3	\$ 23.51	11.37
GRP 4	\$ 28.17	12.01	GRP 4	\$ 27.59	11.52	GRP 4	\$ 26.55	12.56	GRP 4	\$ 23.61	11.37
GRP 5	\$ 28.42	12.01	GRP 5	\$ 27.84	11.52	GRP 5	\$ 26.80	12.56	GRP 5	\$ 23.86	11.37
GRP 6	\$ 29.72	12.01	GRP 6	\$ 29.14	11.52	GRP 6	\$ 28.10	12.56	GRP 6	\$ 25.16	11.37

AREA 1 (District 1): ANOKA, CHISAGO, DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE, WASHINGTON & WRIGHT COS

AREA 2 (District 2A): ST. LOUIS CO (south of T 55N):

AREA 3 (District 2B): ST. LOUIS CO (north of T 55N)

AREA 4 (District 3A): BENTON & STEARNS COS

LABORERS CLASSIFICATIONS

GRP 1: Construction; Bituminous Batchperson (Stationary Plant); Bituminous Worker - Shoveler, Raker, Floater, Squeegee, Utility; Blaster Tender; Brick Tender; Carpenter Tender; Cement Coverperson Batch Truck; Cement Handler - Bulk, Bag; Concrete Batchperson; Concrete Handler, Caisson, Footings, Columns, Piling, Slabs, etc.; Concrete Longitudinal Float Operator (Manual Bullfloat on Paving); Concrete Shoveler, Tamper & Puddler (Paving); Conduit Layer; Curb Setter; Damp Proofer Below Grade; Demolition of an entire Structural System, excluding remodeling; Drill Runner Tender; Dump Operator (Dirt, Paver, Dumping Batch Truck, etc.); Fabric Installer; Grade Checker; Hydrant & Valve Setter; Hydro Blast or Waterblaster; Joint Filler (Concrete Pavement); Kettleperson (Bituminous or Lead); Labor Wrecking Demolition; Mortar Mixer; Pipe Handler; Power Buggy Operator; Pump Operator (less than 6"); Retaining Wall Installation; Sand Cushion Bedmaker; Slip Lining of Utility Lines; Soil Stabilizer; Sound Barrier & Guard Rail Installation; Squeegeeperson; Stabilizing Batchperson (Stationary Plant); Temporary Heaters & Blower Tender; Top Person (Sewer, Water or Gas Trench); Flagperson; Traffic Controller (Traffic Barriers) & Transit/Level; Laser Beam (sewer, water, gas) \$1.50 above Group 1 rate. Blasting Person (Dynamite or substitute product) \$3.00 above Group 1 rate.

GRP 2: Chain Saw; Compaction Equipment (Hand Operated or Remote Control); Concrete Drilling; Concrete Mixer Operator; Concrete Sawyer; Concrete Vibrator; Ditch & other work more than 8' below starting level of manual work; Formsetter; Joint Sawyer, Mortar; Pipe Fuser/Technician; Pneumatic Tools, Jackhammer, Paving Buster, Chipping Hammer, etc.; Remote Control Demo Machine & Related Accessories (Electric/Hydraulic); Stone Tender/Mason Tender; & Torchperson - Gas, Electric, Thermal or similar device

GRP 3: Brick or Block Paving Setter; Caisson Work; Cofferdam Work

GRP 4: Cement Gun Operator (1 1/2" or over); Driller - Air Track or similar; & Nozzle Operator (Gunitite, Sandblasting, Cement); Pipe Rehab (including Cleaning, Relining, Camera).

GRP 5: Bottom person (Sewer, Water, or Gas Trench more than 8 ft below starting level of manual work); Asbestos & Hazardous Waste Tech; Tunnel Laborer; Tunnel Miner; Tunnel Miner Tender; Underground Laborer; & Underpinning

GRP 6: Pipelayer, Tunnel Miner Under Pressure

PAIN0061-004 05/01/2009 CHISAGO, DAKOTA, RAMSEY & WASHINGTON Cos Painters: Brush \$ 30.94 15.60 Sandblaster; Spray; Swing Stage; Boatswain Chair; Window Jack; Safety Belt; Erected Structural Steel; Bridges; & Application of Epoxy Materials and Materials containing over 50% Creosote \$ 31.69 15.60

		<u>Rate</u>	<u>Fringe</u>
PAIN0106-007 05/01/2008	ST. LOUIS CO		
Painters: New:	Brush & Roller	\$ 27.41	12.52
	Spray, Steel, and Bridge	\$ 28.01	12.52
Repaint:	Brush & Roller	\$ 25.91	12.52
	Spray, Steel, and Bridge	\$ 26.51	12.52

PAIN0386-007 05/01/2009 ANOKA, HENNEPIN, SCOTT, SHERBURNE (south & east of a line drawn between the town of Santiago in Sherburne Co and the town of Clearwater in Wright Co) & WRIGHT Cos Painters: Brush & Roller \$ 30.60 15.94 Spray; Steel; Sandblaster; Swing Stage & Epoxy \$ 31.35 15.94

PAIN0880-001 05/01/2002 **Sign Painter** \$ 21.12 2.07+a+b FOOTNOTES: a) 8 Paid Holidays: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; the Day After Thanksgiving; the last working Day Before Christmas; & Christmas Day b) Vacation Pay: 3 yrs svc - 2 wks pd vac; 6 yrs svc - 3 was pd vac; 15 yrs svc - 4 wks pd vac

PAIN0884-004 06/01/2009 BENTON, SHERBURNE (western one-half, north & west of a line drawn between the city of Santiago in Sherburne Co & the city of Clearwater in Wright Co) & STEARNS Cos Painters: Brush & Roller \$ 24.16 13.01 PROJECTS UNDER \$8,000: Receive 80% of basic hourly rate. PAINTER'S PREMIUM - \$0.75 per hour add't for the following: Spray; Two Component Paints; Epoxies; Sandblasting & Rigging; Work done on Swing Scaffolding, Safety Harness, Window Jacks, Boatswain's Chair, Coverings & Erection of Scaffolding for same; Work on Erected Structural Steel & Abrasive Blasting

PLAS0633-003 05/01/2009 ANOKA, CHISAGO, DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE, WASHINGTON & WRIGHT COs
Cement Mason/Concrete Finisher \$ 30.45 16.50

						<u>Rate</u>	<u>Fringe</u>
PLAS0633-019 05/01/2009	ST. LOUIS CO (south of T55N)		Cement Mason/Concrete Finisher	\$ 29.63	15.45		

PLAS0633-023 10/01/2009 ST. LOUIS CO (north of White Face River) Cement Mason/Concrete Finisher \$ 24.31 14.34

* TEAM0160-001 05/01/2010 **TRUCK DRIVER**

AREA 1:			AREA 2:			AREA 3:			AREA 4:		
GRP 1	\$ 27.00	13.15	GRP 1	\$ 26.60	13.15	GRP 1	\$ 24.80	13.15	GRP 1	\$ 20.67	12.75
GRP 2	\$ 26.45	13.15	GRP 2	\$ 26.05	13.15	GRP 2	\$ 24.25	13.15	GRP 2	\$ 20.16	12.75
GRP 3	\$ 26.35	13.15	GRP 3	\$ 25.95	13.15	GRP 3	\$ 24.15	13.15	GRP 3	\$ 20.01	12.75
GRP 4	\$ 26.10	13.15	GRP 4	\$ 25.70	13.15	GRP 4	\$ 23.95	13.15	GRP 4	\$ 20.01	12.75

AREA DESCRIPTIONS:

AREA 1: ANOKA, CHISAGO (south of T. 34-N), DAKOTA, HENNEPIN, RAMSEY, SCOTT, SHERBURNE, WASHINGTON & WRIGHT COs

AREA 2: **ST. LOUIS CO**

AREA 3: WINONA CO

AREA 4: BENTON, CHISAGO (north of T. 34-N) & STEARNS COs

TRUCK DRIVER CLASSIFICATIONS

GRP 1 - Boom; Mechanic; Off-Road, including Articulated Dump Truck; Tractor Trailer; Winch Truck

GRP 2 - Tri Axles (including four axles)

GRP 3 - Bituminous Distributor; Bituminous Distributor (one man operation); Tandem Axles & Single Axles

GRP 4 - Bituminous Distributor Spray Operator (Rear and Oiler); Dumpman; Pilot Car; Self-propelled Packer; Slurry Operator; Tank Truck Tender (Gas, Oil, Road Oil & Water); Tractor Operator (Wheel type used for any purpose)

THE FOLLOWING CLASSIFICATIONS SHALL COME UNDER THE APPROPRIATE AXLE RATE WAGE GROUP: "A" Frame; Dry Batch Hauler; Ready-Mix Concrete; Slurry; Tank (Gas, Oil, Road Oil & Water)

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be: * an existing published wage determination * a survey underlying a wage determination

* a Wage and Hour Division letter setting forth a position on a wage determination matter * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2. and 3) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations.

Write to: Branch of Construction Wage Determinations Wage and Hour Division U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

2) If the answer to the question in 1) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to: Wage and Hour Administrator U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board).

Write to: Administrative Review Board U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

4) All decisions by the Administrative Review Board are final.

===== END OF GENERAL DECISION

Construction Type: **Heavy** County: St Louis County in Minnesota.

HEAVY CONSTRUCTION PROJECTS

Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date
0	03/12/2010										
1	05/07/2010										

BOIL0647-004 07/01/2009 **Boilermaker** \$ **33.84** **18.53**

CARP0361-020 05/01/2009 ST LOUIS CO (southern 1/3 including Cotton, Floodwood, Fond Du Lac, and Proctor)
CARPENTER (including Form Work) \$ 30.12 14.65

	<u>Rate</u>	<u>Fringe</u>
CARP0361-021 05/01/2009 ST LOUIS (Duluth) Carpenter (including Form Work)	\$ 30.52	14.65

CARP0606-010 05/01/2009 ST LOUIS CO (northeast 2/3 including Cook, Cusson, Ely, and western part including Chisholm, Greaney, and Orr)
Carpenter (including Form Work) \$ 30.12 14.65

ELEC0242-012 05/31/2009 **ST. LOUIS** (south part bounded on the north by the north line of Kelsey Township extended east & west)
Electrician \$ **31.24** **63.5%**

ELEC0294-006 06/01/2009 ST. LOUIS (north part bounded on the south by the south line of Ellsburg Township, extended east & west)
Electrician \$ 32.28 58.75%

ENGI0049-064 05/01/2009 **Power Equipment Operator**

Grp 2	\$ 30.57	15.25	Grp 3	\$ 30.02	15.25	Grp 4	\$ 29.72	15.25	Grp 5	\$ 26.68	15.25	Grp 6	\$ 25.47	15.25
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Power Equipment Operator Classifications:

GRP 2: Crane with over 135' Boom, excluding jib; Dragline & Hydraulic Backhoe with shovel-type controls, 3 cubic yards and over; Grader/Blade finishing earthwork and bituminous.

GRP 3: Dragline & Hydraulic Backhoe with shovel-type controls up to 3 cubic yards; Loader 5 cu yd and over; Mechanic; Tandem Scraper; Truck Crane; Crawler Crane

GRP 4: Bituminous Roller 8 tons & over; Crusher/Crushing Plant; Drill Rig; Elevating Grader; Loader over 1 cu yd; Grader; Pump; Scraper up; to 32 cu yd; Farm Tractor with Backhoe attachment; Skid Steer Loader over 1 cu yd with Backhoe attachment; Bulldozer over 50 hp.

GRP 5: Bituminous Roller under 8 tons; Bituminous Rubber Tire Roller; Loader up to 1 cu yd; Bulldozer 50 hp or less.

GRP 6: Oiler; Self-Propelled Vibrating Packer 35 hp and over.

CRANE OVER 135' BOOM, EXCLUDING JIB - \$.25 PREMIUM; CRANE OVER 200' BOOM, EXCLUDING JIB - \$.50 PREMIUM

UNDERGROUND WORK: TUNNELS, SHAFTS, ETC. - \$.25 PREMIUM UNDER AIR PRESSURE - \$.50 PREMIUM

HAZARDOUS WASTE PROJECTS (PPE Required): LEVEL A - \$1.25 PREMIUM LEVEL B - \$.90 PREMIUM LEVEL C - \$.60 PREMIUM

	<u>Rate</u>	<u>Fringe</u>
IRON0512-028 05/01/2009 Ironworker, Reinforcing & Structural	\$ 29.76	19.50

	<u>Rate</u>	<u>Fringe</u>
LABO0132-038 05/01/2009 LABORER Common or General (Natural Gas Pipeline only)	\$ 16.70	10.49

LABO0563-034 05/01/2009 **ST LOUIS CO** (south of T. 55 N)

Laborers	<u>Rate</u>	<u>Fringe</u>
(1) Common or General	\$ 27.14	11.54
(2) Mason Tender Cement/Concrete	\$ 27.34	11.54
(6) Pipe Layer	\$ 29.14	11.54

			<u>Rate</u>	<u>Fringe</u>
LABO0563-035 05/01/2009 ST LOUIS CO (north of T. 55 N)	Laborers: (1) Common or General		\$ 26.10	12.58
	(2) Mason Tender Cement/Concrete	\$ 26.30	12.58	(6) Pipe Layer \$ 28.10 12.58

PLAS0633-036 05/01/2008 ST. LOUIS CO (north of T 55N) Cement Mason/Concrete Finisher \$ 25.40 12.45

PLAS0633-039 05/01/2009 **ST. LOUIS CO** (south of T 55N) **Cement Mason/Concrete Finisher** \$ **29.63** **15.45**

	<u>Rate</u>	<u>Fringe</u>
SUMN2009-072 09/28/2009 Laborer: Landscape	\$ 12.88	4.61

* TEAM0160-018 05/01/2010 **TRUCK DRIVER (DUMP)**

	<u>Rate</u>	<u>Fringe</u>
(1) Articulated Dump Truck	\$ 26.60	13.15
(2) 3 Axles/4 Axles; 5 Axles receive \$0.30 additional per hour	\$ 26.05	13.15
(3) Tandem Axles; & Single Axles	\$ 25.95	13.15

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

- 1) Has there been an initial decision in the matter? This can be: * an existing published wage determination * a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2. and 3) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to: Branch of Construction Wage Determinations Wage and Hour Division U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

2) If the answer to the question in 1) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to: Wage and Hour Administrator U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to: Administrative Review Board U.S. Department of Labor 200 Constitution Avenue, N.W. Washington, DC 20210

4) All decisions by the Administrative Review Board are final.

===== END OF GENERAL DECISION

Construction Type: **Building** County: St Louis County in Minnesota.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date	Mod Nbr	Publ Date
0	03/12/2010										
1	05/07/2010										

		<u>Rate</u>	<u>Fringe</u>
ASBE0049-007 06/01/2009	ASBESTOS WORKER/HEAT & FROST INSULATOR (includes the application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems)	\$ 35.81	13.80

BOIL0647-007 07/01/2009	Boilermaker	\$ 33.84	18.53
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BRMN0001-050 05/01/2009	ST LOUIS CO (remaining northern part)	Tile Setter	\$ 30.58	17.95
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BRMN0003-008 05/01/2009	ST. LOUIS CO (city of Duluth and south of a line between Townships #54 & #55, 2 miles north of Cotton)			
Bricklayer	\$ 30.29	17.95		

		<u>Rate</u>	<u>Fringe</u>
BRMN0003-011 05/01/2008	ST. LOUIS CO (city of Duluth and south of Township Line 55)	Tile Setter	\$ 24.13 17.38

* BRMN0016-002 05/01/2009	ST. LOUIS CO (north of a line between Townships #54 & #55, 2 miles north of Cotton)	Bricklayer	\$ 30.04	18.20
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CARP0361-012 08/10/2009	DULUTH AREA including Alborn, Arnold, Bartlett, Birch, Brookstone, Canyon, Clinton, Culver, Floodwood, Gowan, Island, Kelsey, Lakewood, Meadowlands, Munger, Palmers, Payne, Prasit, Shaw, Taft)			
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		<u>Rate</u>	<u>Fringe</u>
CARPENTER (including Acoustical Installation, Drywall Hanging, Form Work & Overhead Door Installation)	\$ 26.40	13.80	

		<u>Rate</u>	<u>Fringe</u>
CARP0596-005 06/01/2009	Soft Floor Layer	\$ 28.91	12.63

CARP0606-001 06/01/2009	<u>Excluding</u> Duluth Area		
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CARPENTER (including Acoustical Installation, Drywall Hanging, Form Work & Overhead Door Installation)	\$ 25.75	12.69	
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ELEC0242-012 05/31/2009	ST. LOUIS CO (south part bounded on the north by the north line of Kelsey Township extended east & west)
Electrician	\$ 31.24 63.5%

ELEC0294-006 06/01/2009	ST. LOUIS (north part bounded on the south by the south line of Ellsburg Township, extended east & west)
Electrician	\$ 32.28 58.75%

ENGI0049-045 05/01/2009	Power Equipment Operator
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GRP 1	\$ 34.64	15.25	GRP 3	\$ 32.89	15.25	GRP 5	\$ 32.38	15.25	GRP 7	\$ 29.75	15.25
GRP 2	\$ 34.30	15.25	GRP 4	\$ 32.55	15.25	GRP 6	\$ 30.87	15.25	GRP 8	\$ 27.74	15.25

Power Equipment Operator Classifications:**GROUP 1:** Truck & Crawler Crane with 200' of Boom & over, including Jib (\$.50 premium with 300' of Boom & over, including jib); & Tower Crane 250' & over.**GROUP 2:** Truck & Crawler Crane with 150' of Boom, up to but not including 200' of Boom, including Jib; & Tower Crane 200' & over.**GROUP 3:** Traveling Tower Crane; Truck & Crawler Crane, up to but not including 150' of Boom, including Jib; Tower Crane (Stationary) up to 200'; All-Terrain Vehicle Crane, Boom Truck over 100 ft.**GROUP 4:** Backhoe/Track/Trackhoe, Hoist (3 drums or more); Overhead Crane (inside building perimeter), Excavator.**GROUP 5:** Asphalt Spreader, Bulldozer, Curb Machine, Drill, Forklift, Compressor 450 CFM or over (2 or more machines); Boom Truck up to 100 ft, Loader over 1 cu yd, Hoist (1 or 2 drums); Mechanic; Milling Machine, Roller, Scraper, Tractor over D2.**GROUP 6:** Bobcat/Skid Loader, Loader up to 1 cu. yd., Tractor D2 or similar size.**GROUP 7:** Compressor 600 CFM or over, Crane Oiler.**GROUP 8:** Oiler.

		<u>Rate</u>	<u>Fringe</u>
IRON0512-018 05/01/2009	Ironworker, Ornamental, Reinforcing & Structural	\$ 29.76	19.50

		<u>Rate</u>	<u>Fringe</u>
LABO1091-011 01/01/2009	LABORER (ASBESTOS ABATEMENT) Removal From Floors, Walls & Ceilings	\$ 27.65	11.11

LABO1091-013 05/01/2009	ST. LOUIS CO (south of T 55 N)
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Laborers:

GRP 1	\$ 23.45	11.24	GRP 2	\$ 23.60	11.24	GRP 3	\$ 23.85	11.24	GRP 4	\$ 24.15	11.24
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LABORER CLASSIFICATIONS:**GROUP 1:** Common or General, Asphalt Shoveler, Carpenter Tender, Form Stripping**GROUP 2:** Vibrating Plate**GROUP 3:** Pipelayer**GROUP 4:** Mason Tender (Brick, Cement/Concrete)

LABO1097-008 05/01/2009	ST. LOUIS CO (north of T 55N)	Laborer:	GRP 1	\$ 22.91	11.87	GRP 2	\$ 23.31	11.87
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LABORERS CLASSIFICATIONS: GRP 1 - Common or General, Asphalt Shoveler, Carpenter Tender, Form Stripping, Mason Tender (Brick, Cement/Concrete)

GRP 2 - Pipelayer, Vibrating Plate

PAIN0106-001 05/01/2009	Glazier	\$ 24.85	12.95
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FOOTNOTE: 1 to 4 yrs svc - 1 wk pd vac; 5 to 11 yrs - 2 wks pd vac; 11 yrs or more - 3 wks pd vac

PAIN0106-013 05/01/2008

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Painters:	Rate	Fringe
New: Brush, Roller	\$ 27.41	12.52
Spray, Drywall Finisher/Taper	\$ 28.01	12.52
Repaint: Brush, Roller	\$ 25.91	12.52
Spray, Drywall Finisher/Taper	\$ 26.51	12.52

PLAS0633-024 10/01/2009 ST. LOUIS CO (north of White Face River)	Cement Mason/Concrete Finisher	<u>Rate</u>	<u>Fringe</u>
		\$ 24.31	14.34

PLAS0633-059 05/01/2009 CARLTON & ST. LOUIS COs (south of T 55N)	Cement Mason/Concrete Finisher	\$ 27.04	15.45
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* PLUM0011-019 05/04/2009 ST. LOUIS CO (south of an east-west line drawn through Cotton)	Plumber/Pipefitter	\$ 34.45	15.50
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PLUM0589-007 05/01/2009 ST. LOUIS CO (north of an east-west line drawn through Cotton)	Plumber/Pipefitter	\$ 34.34	15.97
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ROOF0096-024 07/06/2009 ST. LOUIS CO (south of Hwy 16, excluding city of Forbes)	Roofer	\$ 29.20	13.20
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ROOF0096-025 05/01/2009 ST. LOUIS CO (remaining northern two-thirds)	Roofer	\$ 25.70	9.65
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SHEE0010-045 05/01/2009 ST. LOUIS CO (southern one-third)	SHEET METAL WORKER (including HVAC Duct Installation)	<u>Rate</u>	<u>Fringe</u>
		\$ 31.61	16.52

SHEE0010-056 05/01/2008 ST. LOUIS CO (northern two-thirds)	SHEET METAL WORKER (including HVAC Duct Installation)	\$ 29.99	16.08
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SUMN2009-050 07/27/2009	<u>Rate</u>	<u>Fringe</u>
LABORER: Landscape	\$ 12.88	4.61
TRUCK DRIVER: Dump Truck	\$ 19.15	5.70

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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WAGE DETERMINATION APPEALS PROCESS

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- 4) All decisions by the Administrative Review Board are final.

===== END OF GENERAL DECISION

**MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE
FUNDED CONSTRUCTION PROJECTS**



THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE

Construction Type: Highway and Heavy

Region Number: 01

Counties within region:

- CARLTON-09
- COOK-16
- ITASCA-31
- KOOCHICHING-36
- LAKE-38
- PINE-58
- ST. LOUIS-69

Effective: 2009-12-07 Revised: 2009-12-09

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate.

Violations should be reported to:

Department of Transportation
Office of Construction
Transportation Building MS650
John Ireland Blvd
St. Paul, MN 55155
(651) 366-4209

Refer questions concerning the prevailing wage rates to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

LABOR CODE AND CLASS

		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
101	LABORER, COMMON (GENERAL LABOR WORK)	2009-12-07	23.36	15.26	38.62
		2010-05-01	23.76	16.46	40.22
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2009-12-07	23.36	15.26	38.62
		2010-05-01	23.76	16.46	40.22
103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2009-12-07	19.19	0.00	19.19
104	FLAG PERSON	2009-12-07	23.36	15.26	38.62
		2010-05-01	23.76	16.46	40.22
105	WATCH PERSON	2009-12-07	21.69	13.13	34.82
		2010-05-01	22.09	14.33	36.42
106	BLASTER	2009-12-07	28.24	13.38	41.62
		2010-05-01	28.64	14.58	43.22
107	PIPELAYER (WATER, SEWER AND GAS)	2009-12-07	27.24	13.38	40.62
		2010-05-01	27.64	14.58	42.22
108	TUNNEL MINER	2009-12-07	25.94	13.38	39.32
		2010-05-01	26.34	14.58	40.92
109	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2009-12-07	24.06	15.26	39.32
		2010-05-01	24.46	16.46	40.92
110	SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND	2009-12-07	14.63	8.91	23.54

SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.

111	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
112	QUALITY CONTROL TESTER (FIELD AND COVERED OFF-SITE FACILITIES; TESTING OF AGGREGATE, ASPHALT, AND CONCRETE MATERIALS); LIMITED TO MN DOT HIGHWAY AND HEAVY CONSTRUCTION PROJECTS WHERE THE MN DOT HAS RETAINED QUALITY ASSURANCE PROFESSIONALS TO REVIEW AND INTERPRET THE RESULTS OF QUALITY CONTROL TESTERS. SERVICES PROVIDED BY THE CONTRACTOR.	2009-12-07	16.50	4.09	20.59
201	ARTICULATED HAULER	2009-12-07	29.72	15.25	44.97
		2010-05-01	31.57	15.85	47.42
202	BOOM TRUCK	2009-12-07	29.72	15.25	44.97
		2010-05-01	30.72	15.85	46.57
203	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
204	OFF-ROAD TRUCK	2009-12-07	25.75	12.40	38.15
		2010-05-01	27.35	12.40	39.75
GROUP 2		2009-12-07	30.57	15.25	45.82
		2010-05-01	31.57	15.85	47.42
302	HELICOPTER PILOT (HIGHWAY AND HEAVY ONLY)				
303	CONCRETE PUMP (HIGHWAY AND HEAVY ONLY)				

- 304 ALL CRANES WITH OVER 135-FOOT BOOM, EXCLUDING JIB (HIGHWAY AND HEAVY ONLY)
- 305 DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR OTHER SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND OVER MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)
- 306 GRADER OR MOTOR PATROL (HIGHWAY AND HEAVY ONLY)
- 307 PILE DRIVING (HIGHWAY AND HEAVY ONLY)
- 308 TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)

GROUP 3	2009-12-07	30.02	15.25	45.27
	2010-05-01	31.02	15.85	46.87

- 309 ASPHALT BITUMINOUS STABILIZER PLANT (HIGHWAY AND HEAVY ONLY)
- 310 CABLEWAY (HIGHWAY AND HEAVY ONLY)
- 311 CONCRETE MIXER, STATIONARY PLANT (HIGHWAY AND HEAVY ONLY)
- 312 DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)
- 313 DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
- 314 DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER (HIGHWAY AND HEAVY ONLY)
- 315 FRONT END LOADER, FIVE CUBIC YARDS AND OVER INCLUDING ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)
- 316 LOCOMOTIVE CRANE OPERATOR (HIGHWAY AND HEAVY ONLY)
- 317 MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE (HIGHWAY AND HEAVY ONLY)
- 318 MECHANIC . WELDER ON POWER EQUIPMENT (HIGHWAY AND HEAVY ONLY)
- 319 TRACTOR . BOOM TYPE (HIGHWAY AND HEAVY ONLY)
- 320 TANDEM SCRAPER (HIGHWAY AND HEAVY ONLY)
- 321 TRUCK CRANE . CRAWLER CRANE (HIGHWAY AND HEAVY ONLY)
- 322 TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)

GROUP 4	2009-12-07	29.72	15.25	44.97
	2010-05-01	30.72	15.85	46.57

- 323 AIR TRACK ROCK DRILL (HIGHWAY AND HEAVY ONLY)
- 324 AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)
- 325 BACKFILLER OPERATOR (HIGHWAY AND HEAVY ONLY)
- 326 CONCRETE BATCH PLANT OPERATOR (HIGHWAY AND HEAVY ONLY)
- 327

- BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER)
(HIGHWAY AND HEAVY ONLY)
- 328 BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO
SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)
(HIGHWAY AND HEAVY ONLY)
- 329 BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS (HIGHWAY
AND HEAVY ONLY)
- 330 CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS
AND SCRAPERS (HIGHWAY AND HEAVY ONLY)
- 331 CHIP HARVESTER AND TREE CUTTER (HIGHWAY AND HEAVY ONLY)
- 332 CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT,
JOINT MACHINE, AND SPRAY MACHINE (HIGHWAY AND HEAVY ONLY)
- 333 CONCRETE MIXER ON JOBSITE (HIGHWAY AND HEAVY ONLY)
- 334 CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)
- 335 CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING
PLANT (HIGHWAY AND HEAVY ONLY)
- 336 CURB MACHINE (HIGHWAY AND HEAVY ONLY)
- 337 DIRECTIONAL BORING MACHINE (HIGHWAY AND HEAVY ONLY)
- 338 DOPE MACHINE (PIPELINE) (HIGHWAY AND HEAVY ONLY)
- 339 DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL (HIGHWAY AND HEAVY ONLY)
- 340 DUAL TRACTOR (HIGHWAY AND HEAVY ONLY)
- 341 ELEVATING GRADER (HIGHWAY AND HEAVY ONLY)
- 342 FORK LIFT OR STRADDLE CARRIER (HIGHWAY AND HEAVY ONLY)
- 343 FORK LIFT OR LUMBER STACKER (HIGHWAY AND HEAVY ONLY)
- 344 FRONT END, SKID STEER OVER 1 TO 5 C YD
- 345 GPS REMOTE OPERATING OF EQUIPMENT (HIGHWAY AND HEAVY ONLY)
- 346 HOIST ENGINEER (POWER) (HIGHWAY AND HEAVY ONLY)
- 347 HYDRAULIC TREE PLANTER (HIGHWAY AND HEAVY ONLY)
- 348 LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE) (HIGHWAY AND HEAVY ONLY)
- 349 LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)
- 350 MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE (HIGHWAY AND
HEAVY ONLY)
- 351 MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS,
PUMPS (HIGHWAY AND HEAVY ONLY)
- 352 PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR
TYPE (HIGHWAY AND HEAVY ONLY)
- 353 PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY (HIGHWAY AND HEAVY
ONLY)
- 354 PIPELINE WRAPPING, CLEANING OR BENDING MACHINE (HIGHWAY AND HEAVY ONLY)

355 POWER PLANT ENGINEER, 100 KWH AND OVER (HIGHWAY AND HEAVY ONLY)

356 POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES (HIGHWAY AND HEAVY ONLY)

357 PUGMILL (HIGHWAY AND HEAVY ONLY)

358 PUMPCRETE (HIGHWAY AND HEAVY ONLY)

359 RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)

360 SCRAPER (HIGHWAY AND HEAVY ONLY)

361 SELF-PROPELLED SOIL STABILIZER (HIGHWAY AND HEAVY ONLY)

362 SLIP FORM (POWER DRIVEN) (PAVING) (HIGHWAY AND HEAVY ONLY)

363 TIE TAMPER AND BALLAST MACHINE (HIGHWAY AND HEAVY ONLY)

364 TRACTOR, BULLDOZER (HIGHWAY AND HEAVY ONLY)

365 TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)

366 TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER (HIGHWAY AND HEAVY ONLY)

367 TUB GRINDER, MORBARK, OR SIMILAR TYPE (HIGHWAY AND HEAVY ONLY)

368 WELL POINT DISMANTLING OR INSTALLATION (HIGHWAY AND HEAVY ONLY)

GROUP 5	2009-12-07	26.68	15.25	41.93
	2010-05-01	27.68	15.85	43.53

369 AIR COMPRESSOR, 600 CFM OR OVER (HIGHWAY AND HEAVY ONLY)

370 BITUMINOUS ROLLER (UNDER EIGHT TONS) (HIGHWAY AND HEAVY ONLY)

371 CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED) (HIGHWAY AND HEAVY ONLY)

372 FORM TRENCH DIGGER (POWER) (HIGHWAY AND HEAVY ONLY)

373 FRONT END, SKID STEER UP TO 1C YD

374 GUNITE GUNALL (HIGHWAY AND HEAVY ONLY)

375 HYDRAULIC LOG SPLITTER (HIGHWAY AND HEAVY ONLY)

376 LOADER (BARBER GREENE OR SIMILAR TYPE) (HIGHWAY AND HEAVY ONLY)

377 POST HOLE DRIVING MACHINE/POST HOLE AUGER (HIGHWAY AND HEAVY ONLY)

378 POWER ACTUATED AUGER AND BORING MACHINE (HIGHWAY AND HEAVY ONLY)

379 POWER ACTUATED JACK (HIGHWAY AND HEAVY ONLY)

380 PUMP (HIGHWAY AND HEAVY ONLY)

381 SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR) (HIGHWAY AND HEAVY ONLY)

382 SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER(HIGHWAY AND HEAVY ONLY)

383 SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER (HIGHWAY AND HEAVY ONLY)

384 STUMP CHIPPER AND TREE CHIPPER (HIGHWAY AND HEAVY ONLY)

385 TREE FARMER (MACHINE) (HIGHWAY AND HEAVY ONLY)

GROUP 6	2009-12-07	25.47	15.25	40.72
	2010-05-01	26.47	15.85	42.32

387 CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER (HIGHWAY AND HEAVY ONLY)

388 CONVEYOR (HIGHWAY AND HEAVY ONLY)

389 DREDGE DECK HAND (HIGHWAY AND HEAVY ONLY)

390 FIRE PERSON OR TANK CAR HEATER (HIGHWAY AND HEAVY ONLY)

391 GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING) (HIGHWAY AND HEAVY ONLY)

392 GREASER (TRACTOR) (HIGHWAY AND HEAVY ONLY)

393 LEVER PERSON (HIGHWAY AND HEAVY ONLY)

394 OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT) (HIGHWAY AND HEAVY ONLY)

395 POWER SWEEPER (HIGHWAY AND HEAVY ONLY)

396 SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS (HIGHWAY AND HEAVY ONLY)

397 TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING

GROUP 1	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US
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501 HELICOPTER PILOT (COMMERCIAL CONSTRUCTION ONLY)

502 TOWER CRANE 250 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)

503 TRUCK CRAWLER CRANE WITH 200 FEET OF BOOM AND OVER, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)

GROUP 2	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US
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504 CONCRETE PUMP WITH 50 METERS/164 FEET OF BOOM AND OVER (COMMERCIAL CONSTRUCTION ONLY)

505 PILE DRIVING WHEN THREE DRUMS IN USE (COMMERCIAL CONSTRUCTION ONLY)

506 TOWER CRANE 200 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)

507 TRUCK OR CRAWLER CRANE WITH 150 FEET OF BOOM UP TO AND NOT INCLUDING 200 FEET, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)

GROUP 3

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

- 508 ALL-TERRAIN VEHICLE CRANES (COMMERCIAL CONSTRUCTION ONLY)
- 509 CONCRETE PUMP 32-49 METERS/102-164 FEET (COMMERCIAL CONSTRUCTION ONLY)
- 510 DERRICK (GUY & STIFFLEG) (COMMERCIAL CONSTRUCTION ONLY)
- 511 STATIONARY TOWER CRANE 200 FEET AND OVER MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)
- 512 SELF-ERECTING TOWER CRANE 100 FEET AND OVER MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)
- 513 TRAVELING TOWER CRANE (COMMERCIAL CONSTRUCTION ONLY)
- 514 TRUCK OR CRAWLER CRANE UP TO AND NOT INCLUDING 150 FEET OF BOOM, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)

GROUP 4

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

- 515 CRAWLER BACKHOE INCLUDING ATTACHMENTS (COMMERCIAL CONSTRUCTION ONLY)
- 516 FIREPERSON, CHIEF BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
- 517 HOIST ENGINEER (THREE DRUMS OR MORE) (COMMERCIAL CONSTRUCTION ONLY)
- 518 LOCOMOTIVE (COMMERCIAL CONSTRUCTION ONLY)
- 519 OVERHEAD CRANE (INSIDE BUILDING PERIMETER) (COMMERCIAL CONSTRUCTION ONLY)
- 520 TRACTOR . BOOM TYPE (COMMERCIAL CONSTRUCTION ONLY)

GROUP 5

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

- 521 AIR COMPRESSOR 450 CFM OR OVER (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)
- 522 CONCRETE MIXER (COMMERCIAL CONSTRUCTION ONLY)
- 523 CONCRETE PUMP UP TO 31 METERS/101 FEET OF BOOM
- 524 DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL WHEN USED FOR CAISSON FOR ELEVATOR OR BUILDING CONSTRUCTION (COMMERCIAL CONSTRUCTION ONLY)
- 525 FORKLIFT (COMMERCIAL CONSTRUCTION ONLY)
- 526 FRONT END, SKID STEER 1 TO 5 C YD
- 527 HOIST ENGINEER (ONE OR TWO DRUMS) (COMMERCIAL CONSTRUCTION ONLY)
- 528 MECHANIC-WELDER (ON POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)
- 529 POWER PLANT (100 KW AND OVER OR MULTIPLES EQUAL TO 100KW AND OVER) (COMMERCIAL CONSTRUCTION ONLY)
- 530

PUMP OPERATOR AND/OR CONVEYOR (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)

531 SELF-ERECTING TOWER CRANE UNDER 100 FEET MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)

532 STRADDLE CARRIER (COMMERCIAL CONSTRUCTION ONLY)

533 TRACTOR OVER D2 (COMMERCIAL CONSTRUCTION ONLY)

534 WELL POINT PUMP (COMMERCIAL CONSTRUCTION ONLY)

GROUP 6

FOR RATE CALL 651-284-5091 OR
EMAIL

DLI.PREVWAGE@STATE.MN.US

535 CONCRETE BATCH PLANT (COMMERCIAL CONSTRUCTION ONLY)

536 FIREPERSON, FIRST CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)

537 FRONT END, SKID STEER UP TO 1 C YD

538 GUNITE MACHINE (COMMERCIAL CONSTRUCTION ONLY)

539 TRACTOR OPERATOR D2 OR SIMILAR SIZE (COMMERCIAL CONSTRUCTION ONLY)

540 TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER

GROUP 7

FOR RATE CALL 651-284-5091 OR
EMAIL

DLI.PREVWAGE@STATE.MN.US

541 AIR COMPRESSOR 600 CFM OR OVER (COMMERCIAL CONSTRUCTION ONLY)

542 BRAKEPERSON (COMMERCIAL CONSTRUCTION ONLY)

543 CONCRETE PUMP/PUMPCRETE OR COMPLACO TYPE (COMMERCIAL CONSTRUCTION ONLY)

544 FIREPERSON, TEMPORARY HEAT SECOND CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)

545 OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS AND MILLING MACHINES, OR OTHER SIMILAR POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)

546 PICK UP SWEEPER (ONE CUBIC YARD HOPPER CAPACITY) (COMMERCIAL CONSTRUCTION ONLY)

547 PUMP AND/OR CONVEYOR (COMMERCIAL CONSTRUCTION ONLY)

GROUP 8

FOR RATE CALL 651-284-5091 OR
EMAIL

DLI.PREVWAGE@STATE.MN.US

548 ELEVATOR OPERATOR (COMMERCIAL CONSTRUCTION ONLY)

549 GREASER (COMMERCIAL CONSTRUCTION ONLY)

550 MECHANICAL SPACE HEATER (TEMPORARY HEAT NO BOILER LICENSE REQUIRED) (COMMERCIAL CONSTRUCTION ONLY)

GROUP 1	2009-12-07	25.75	12.40	38.15
	2010-05-01	26.60	13.15	39.75
601 MECHANIC . WELDER				
602 TRACTOR TRAILER DRIVER				
603 TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)				
GROUP 2	2009-12-07	25.20	12.40	37.60
604 FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK				
GROUP 3	2009-12-07	25.10	12.40	37.50
	2010-05-01	25.95	13.15	39.10
605 BITUMINOUS DISTRIBUTOR DRIVER				
606 BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)				
607 THREE AXLE UNITS				
GROUP 4	2009-12-07	24.85	12.40	37.25
	2010-05-01	25.70	13.15	38.85
608 BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)				
609 DUMP PERSON				
610 GREASER				
611 PILOT CAR DRIVER				
612 RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS				
613 TWO AXLE UNIT				
614 SLURRY OPERATOR				
615 TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)				
616 TRACTOR OPERATOR, UNDER 50 H.P.				
701 HEATING AND FROST INSULATORS	2009-12-07	34.16	11.75	45.91
	2010-06-01	36.11	11.75	47.86
702 BOILERMAKERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
703 BRICKLAYERS	2009-12-07	28.29	19.95	48.24
704 CARPENTERS	2009-12-07	29.27	15.90	45.17

2010-05-01	30.87	15.90	46.77
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705 CARPET LAYERS (LINOLEUM)

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVIEWWAGE@STATE.MN.US

706 CEMENT MASONS

2009-12-07	26.63	15.45	42.08
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707 ELECTRICIANS

2009-12-07	31.24	19.84	51.08
2010-05-30	32.40	20.58	52.98

708 ELEVATOR CONSTRUCTORS

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVIEWWAGE@STATE.MN.US

709 GLAZIERS

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVIEWWAGE@STATE.MN.US

710 LATHERS

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVIEWWAGE@STATE.MN.US

711 GROUND PERSON

2009-12-07	23.33	14.83	38.16
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712 IRONWORKERS

2009-12-07	29.76	19.50	49.26
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713 LINEMAN

2009-12-07	34.82	14.82	49.64
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714 MILLWRIGHT

2009-12-07	29.26	16.31	45.57
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715 PAINTERS (INCLUDING HAND BRUSHED, HAND
SPRAYED, AND THE TAPING OF PAVEMENT
MARKINGS)

2009-12-07	27.28	13.20	40.48
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716 PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR
EXTRACTOR FOR PILING AND SHEETING
OPERATIONS)

2009-12-07	28.87	15.90	44.77
2010-05-01	30.47	15.90	46.37

717 PIPEFITTERS . STEAMFITTERS	2009-12-07	35.34	14.97	50.31
	2010-05-01	37.44	14.97	52.41
718 PLASTERERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
719 PLUMBERS	2009-12-07	34.45	15.40	49.85
	2010-05-03	36.35	15.40	51.75
720 ROOFER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
721 SHEET METAL WORKERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
722 SPRINKLER FITTERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
723 TERRAZZO WORKERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
724 TILE SETTERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
725 TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
726 DRYWALL TAPER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
727 WIRING SYSTEM TECHNICIAN	2009-12-07	30.98	12.18	43.16
728 WIRING SYSTEMS INSTALLER	2009-12-07	21.68	10.48	32.16

729 ASBESTOS ABATEMENT WORKER

2009-12-07 25.66 5.92 31.58

730 SIGN ERECTOR

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PRE VWAGE@STATE.MN.US

**MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE
FUNDED CONSTRUCTION PROJECTS**



THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE

Construction Type: Commercial

County Number: 69

County Name: ST. LOUIS

Effective: 2010-04-05 Revised: 2010-04-29

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate.

Violations should be reported to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

* Indicates that adjacent county rates were used for the labor class listed.

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
101	LABORER, COMMON (GENERAL LABOR WORK)	2010-04-05	21.55	13.18	34.73
		2010-05-01	21.55	14.38	35.93
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2010-04-05	21.55	13.18	34.73
		2010-05-01	21.55	14.38	35.93
103*	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2010-04-05	25.94	0.00	25.94

104* FLAG PERSON	2010-04-05	21.55	13.18	34.73
	2010-05-01	21.55	14.38	35.93
105* WATCH PERSON	2010-04-05	19.20	13.18	32.38
	2010-05-01	19.20	14.38	33.58
106 BLASTER	2010-04-05	22.25	13.18	35.43
	2010-05-01	22.25	14.38	36.63
107 PIPELAYER (WATER, SEWER AND GAS)	2010-04-05	27.24	13.38	40.62
	2010-05-01	27.64	14.58	42.22
108 TUNNEL MINER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
109 UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2010-04-05	25.94	13.38	39.32
	2010-05-01	26.34	14.58	40.92
110 SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
111 TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
112 QUALITY CONTROL TESTER (FIELD AND COVERED OFF-SITE FACILITIES; TESTING OF AGGREGATE, ASPHALT, AND CONCRETE MATERIALS); LIMITED TO MN DOT HIGHWAY AND HEAVY CONSTRUCTION	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			

PROJECTS WHERE THE MN DOT HAS RETAINED
QUALITY ASSURANCE PROFESSIONALS TO REVIEW
AND INTERPRET THE RESULTS OF QUALITY
CONTROL TESTERS. SERVICES PROVIDED BY THE
CONTRACTOR.

201 ARTICULATED HAULER

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

202* BOOM TRUCK

2010-04-05 32.38 15.25 47.63

203 LANDSCAPING EQUIPMENT, INCLUDES HYDRO
SEEDER OR MULCHER, SOD ROLLER, FARM
TRACTOR WITH ATTACHMENT SPECIFICALLY
SEEDING, SODDING, OR PLANT, AND TWO-FRAMED
FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND
SKID STEER LOADERS), NO EARTHWORK OR
GRADING FOR ELEVATIONS

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

204* OFF-ROAD TRUCK

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

GROUP 2 *

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

302 HELICOPTER PILOT (HIGHWAY AND HEAVY ONLY)

303 CONCRETE PUMP (HIGHWAY AND HEAVY ONLY)

304 ALL CRANES WITH OVER 135-FOOT BOOM, EXCLUDING JIB (HIGHWAY AND HEAVY ONLY)

305 DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR
OTHER SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS THREE CUBIC YARDS AND
OVER MANUFACTURER'S RATED CAPACITY INCLUDING ALL ATTACHMENTS. (HIGHWAY
AND HEAVY ONLY)

306 GRADER OR MOTOR PATROL (HIGHWAY AND HEAVY ONLY)

307 PILE DRIVING (HIGHWAY AND HEAVY ONLY)

308 TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)

GROUP 3 *

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

- 309 ASPHALT BITUMINOUS STABILIZER PLANT (HIGHWAY AND HEAVY ONLY)
- 310 CABLEWAY (HIGHWAY AND HEAVY ONLY)
- 311 CONCRETE MIXER, STATIONARY PLANT (HIGHWAY AND HEAVY ONLY)
- 312 DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)
- 313 DRAGLINE, CRAWLER, HYDRAULIC BACKHOE (TRACK OR WHEEL MOUNTED) AND/OR SIMILAR EQUIPMENT WITH SHOVEL-TYPE CONTROLS, UP TO THREE CUBIC YARDS MANUFACTURER.S RATED CAPACITY INCLUDING ALL ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
- 314 DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER (HIGHWAY AND HEAVY ONLY)
- 315 FRONT END LOADER, FIVE CUBIC YARDS AND OVER INCLUDING ATTACHMENTS. (HIGHWAY AND HEAVY ONLY)
- 316 LOCOMOTIVE CRANE OPERATOR (HIGHWAY AND HEAVY ONLY)
- 317 MIXER (PAVING) CONCRETE PAVING, ROAD MOLE, INCLUDING MUCKING OPERATIONS, CONWAY OR SIMILAR TYPE (HIGHWAY AND HEAVY ONLY)
- 318 MECHANIC . WELDER ON POWER EQUIPMENT (HIGHWAY AND HEAVY ONLY)
- 319 TRACTOR . BOOM TYPE (HIGHWAY AND HEAVY ONLY)
- 320 TANDEM SCRAPER (HIGHWAY AND HEAVY ONLY)
- 321 TRUCK CRANE . CRAWLER CRANE (HIGHWAY AND HEAVY ONLY)
- 322 TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)

GROUP 4 *

FOR RATE CALL 651-284-5091 OR
EMAIL
DLI.PREVWAGE@STATE.MN.US

- 323 AIR TRACK ROCK DRILL (HIGHWAY AND HEAVY ONLY)
- 324 AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)
- 325 BACKFILLER OPERATOR (HIGHWAY AND HEAVY ONLY)
- 326 CONCRETE BATCH PLANT OPERATOR (HIGHWAY AND HEAVY ONLY)
- 327 BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER) (HIGHWAY AND HEAVY ONLY)
- 328 BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON) (HIGHWAY AND HEAVY ONLY)
- 329 BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
- 330 CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS (HIGHWAY AND HEAVY ONLY)
- 331 CHIP HARVESTER AND TREE CUTTER (HIGHWAY AND HEAVY ONLY)
- 332 CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE (HIGHWAY AND HEAVY ONLY)

- 333 CONCRETE MIXER ON JOBSITE (HIGHWAY AND HEAVY ONLY)
- 334 CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)
- 335 CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT (HIGHWAY AND HEAVY ONLY)
- 336 CURB MACHINE (HIGHWAY AND HEAVY ONLY)
- 337 DIRECTIONAL BORING MACHINE (HIGHWAY AND HEAVY ONLY)
- 338 DOPE MACHINE (PIPELINE) (HIGHWAY AND HEAVY ONLY)
- 339 DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL (HIGHWAY AND HEAVY ONLY)
- 340 DUAL TRACTOR (HIGHWAY AND HEAVY ONLY)
- 341 ELEVATING GRADER (HIGHWAY AND HEAVY ONLY)
- 342 FORK LIFT OR STRADDLE CARRIER (HIGHWAY AND HEAVY ONLY)
- 343 FORK LIFT OR LUMBER STACKER (HIGHWAY AND HEAVY ONLY)
- 344 FRONT END, SKID STEER OVER 1 TO 5 C YD
- 345 GPS REMOTE OPERATING OF EQUIPMENT (HIGHWAY AND HEAVY ONLY)
- 346 HOIST ENGINEER (POWER) (HIGHWAY AND HEAVY ONLY)
- 347 HYDRAULIC TREE PLANTER (HIGHWAY AND HEAVY ONLY)
- 348 LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE) (HIGHWAY AND HEAVY ONLY)
- 349 LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)
- 350 MILLING, GRINDING, PLANING, FINE GRADE, OR TRIMMER MACHINE (HIGHWAY AND HEAVY ONLY)
- 351 MULTIPLE MACHINES, SUCH AS AIR COMPRESSORS, WELDING MACHINES, GENERATORS, PUMPS (HIGHWAY AND HEAVY ONLY)
- 352 PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE (HIGHWAY AND HEAVY ONLY)
- 353 PICKUP SWEEPER, ONE CUBIC YARD AND OVER HOPPER CAPACITY(HIGHWAY AND HEAVY ONLY)
- 354 PIPELINE WRAPPING, CLEANING OR BENDING MACHINE (HIGHWAY AND HEAVY ONLY)
- 355 POWER PLANT ENGINEER, 100 KWH AND OVER (HIGHWAY AND HEAVY ONLY)
- 356 POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES (HIGHWAY AND HEAVY ONLY)
- 357 PUGMILL (HIGHWAY AND HEAVY ONLY)
- 358 PUMPCRETE (HIGHWAY AND HEAVY ONLY)
- 359 RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
- 360 SCRAPER (HIGHWAY AND HEAVY ONLY)
- 361 SELF-PROPELLED SOIL STABILIZER (HIGHWAY AND HEAVY ONLY)
- 362 SLIP FORM (POWER DRIVEN) (PAVING) (HIGHWAY AND HEAVY ONLY)
- 363 TIE TAMPER AND BALLAST MACHINE (HIGHWAY AND HEAVY ONLY)

- 364 TRACTOR, BULLDOZER (HIGHWAY AND HEAVY ONLY)
- 365 TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)
- 366 TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER (HIGHWAY AND HEAVY ONLY)
- 367 TUB GRINDER, MORBARK, OR SIMILAR TYPE (HIGHWAY AND HEAVY ONLY)
- 368 WELL POINT DISMANTLING OR INSTALLATION (HIGHWAY AND HEAVY ONLY)

GROUP 5

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- 369 AIR COMPRESSOR, 600 CFM OR OVER (HIGHWAY AND HEAVY ONLY)
- 370 BITUMINOUS ROLLER (UNDER EIGHT TONS) (HIGHWAY AND HEAVY ONLY)
- 371 CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED) (HIGHWAY AND HEAVY ONLY)
- 372 FORM TRENCH DIGGER (POWER) (HIGHWAY AND HEAVY ONLY)
- 373 FRONT END, SKID STEER UP TO 1C YD
- 374 GUNITE GUNALL (HIGHWAY AND HEAVY ONLY)
- 375 HYDRAULIC LOG SPLITTER (HIGHWAY AND HEAVY ONLY)
- 376 LOADER (BARBER GREENE OR SIMILAR TYPE) (HIGHWAY AND HEAVY ONLY)
- 377 POST HOLE DRIVING MACHINE/POST HOLE AUGER (HIGHWAY AND HEAVY ONLY)
- 378 POWER ACTUATED AUGER AND BORING MACHINE (HIGHWAY AND HEAVY ONLY)
- 379 POWER ACTUATED JACK (HIGHWAY AND HEAVY ONLY)
- 380 PUMP (HIGHWAY AND HEAVY ONLY)
- 381 SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR) (HIGHWAY AND HEAVY ONLY)
- 382 SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER(HIGHWAY AND HEAVY ONLY)
- 383 SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER (HIGHWAY AND HEAVY ONLY)
- 384 STUMP CHIPPER AND TREE CHIPPER (HIGHWAY AND HEAVY ONLY)
- 385 TREE FARMER (MACHINE) (HIGHWAY AND HEAVY ONLY)

GROUP 6 *

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- 387 CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER (HIGHWAY AND HEAVY ONLY)
- 388 CONVEYOR (HIGHWAY AND HEAVY ONLY)
- 389 DREDGE DECK HAND (HIGHWAY AND HEAVY ONLY)
- 390 FIRE PERSON OR TANK CAR HEATER (HIGHWAY AND HEAVY ONLY)

391	GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING) (HIGHWAY AND HEAVY ONLY)				
392	GREASER (TRACTOR) (HIGHWAY AND HEAVY ONLY)				
393	LEVER PERSON (HIGHWAY AND HEAVY ONLY)				
394	OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS, AND MILLING MACHINES, OR OTHER SIMILAR HEAVY EQUIPMENT) (HIGHWAY AND HEAVY ONLY)				
395	POWER SWEEPER (HIGHWAY AND HEAVY ONLY)				
396	SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS (HIGHWAY AND HEAVY ONLY)				
397	TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING				
GROUP 1		2010-04-05	34.64	15.25	49.89
501	HELICOPTER PILOT (COMMERCIAL CONSTRUCTION ONLY)				
502	TOWER CRANE 250 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)				
503	TRUCK CRAWLER CRANE WITH 200 FEET OF BOOM AND OVER, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 2		2010-04-05	34.55	14.19	48.74
504	CONCRETE PUMP WITH 50 METERS/164 FEET OF BOOM AND OVER (COMMERCIAL CONSTRUCTION ONLY)				
505	PILE DRIVING WHEN THREE DRUMS IN USE (COMMERCIAL CONSTRUCTION ONLY)				
506	TOWER CRANE 200 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)				
507	TRUCK OR CRAWLER CRANE WITH 150 FEET OF BOOM UP TO AND NOT INCLUDING 200 FEET, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 3		2010-04-05	34.30	15.25	49.55
508	ALL-TERRAIN VEHICLE CRANES (COMMERCIAL CONSTRUCTION ONLY)				
509	CONCRETE PUMP 32-49 METERS/102-164 FEET (COMMERCIAL CONSTRUCTION ONLY)				
510	DERRICK (GUY & STIFFLEG) (COMMERCIAL CONSTRUCTION ONLY)				
511	STATIONARY TOWER CRANE 200 FEET AND OVER MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)				
512	SELF-ERECTING TOWER CRANE 100 FEET AND OVER MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)				
513	TRAVELING TOWER CRANE (COMMERCIAL CONSTRUCTION ONLY)				
514	TRUCK OR CRAWLER CRANE UP TO AND NOT INCLUDING 150 FEET OF BOOM, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 4		2010-04-05	32.55	15.25	47.80
515	CRAWLER BACKHOE INCLUDING ATTACHMENTS (COMMERCIAL CONSTRUCTION ONLY)				

516 FIREPERSON, CHIEF BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
 517 HOIST ENGINEER (THREE DRUMS OR MORE) (COMMERCIAL CONSTRUCTION ONLY)
 518 LOCOMOTIVE (COMMERCIAL CONSTRUCTION ONLY)
 519 OVERHEAD CRANE (INSIDE BUILDING PERIMETER) (COMMERCIAL CONSTRUCTION ONLY)
 520 TRACTOR . BOOM TYPE (COMMERCIAL CONSTRUCTION ONLY)

GROUP 5 2010-04-05 32.38 15.25 47.63

521 AIR COMPRESSOR 450 CFM OR OVER (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)
 522 CONCRETE MIXER (COMMERCIAL CONSTRUCTION ONLY)
 523 CONCRETE PUMP UP TO 31 METERS/101 FEET OF BOOM
 524 DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL WHEN USED FOR CAISSON FOR ELEVATOR OR BUILDING CONSTRUCTION (COMMERCIAL CONSTRUCTION ONLY)
 525 FORKLIFT (COMMERCIAL CONSTRUCTION ONLY)
 526 FRONT END, SKID STEER 1 TO 5 C YD
 527 HOIST ENGINEER (ONE OR TWO DRUMS) (COMMERCIAL CONSTRUCTION ONLY)
 528 MECHANIC-WELDER (ON POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)
 529 POWER PLANT (100 KW AND OVER OR MULTIPLES EQUAL TO 100KW AND OVER) (COMMERCIAL CONSTRUCTION ONLY)
 530 PUMP OPERATOR AND/OR CONVEYOR (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)
 531 SELF-ERECTING TOWER CRANE UNDER 100 FEET MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)
 532 STRADDLE CARRIER (COMMERCIAL CONSTRUCTION ONLY)
 533 TRACTOR OVER D2 (COMMERCIAL CONSTRUCTION ONLY)
 534 WELL POINT PUMP (COMMERCIAL CONSTRUCTION ONLY)

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535 CONCRETE BATCH PLANT (COMMERCIAL CONSTRUCTION ONLY)
 536 FIREPERSON, FIRST CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
 537 FRONT END, SKID STEER UP TO 1 C YD
 538 GUNITE MACHINE (COMMERCIAL CONSTRUCTION ONLY)
 539 TRACTOR OPERATOR D2 OR SIMILAR SIZE (COMMERCIAL CONSTRUCTION ONLY)
 540 TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER

GROUP 7 2010-04-05 29.75 15.25 45.00

- 541 AIR COMPRESSOR 600 CFM OR OVER (COMMERCIAL CONSTRUCTION ONLY)
- 542 BRAKEPERSON (COMMERCIAL CONSTRUCTION ONLY)
- 543 CONCRETE PUMP/PUMPCRETE OR COMPLACO TYPE (COMMERCIAL CONSTRUCTION ONLY)
- 544 FIREPERSON, TEMPORARY HEAT SECOND CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)
- 545 OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS AND MILLING MACHINES, OR OTHER SIMILAR POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)
- 546 PICK UP SWEEPER (ONE CUBIC YARD HOPPER CAPACITY) (COMMERCIAL CONSTRUCTION ONLY)
- 547 PUMP AND/OR CONVEYOR (COMMERCIAL CONSTRUCTION ONLY)

GROUP 8 *

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- 548 ELEVATOR OPERATOR (COMMERCIAL CONSTRUCTION ONLY)
- 549 GREASER (COMMERCIAL CONSTRUCTION ONLY)
- 550 MECHANICAL SPACE HEATER (TEMPORARY HEAT NO BOILER LICENSE REQUIRED) (COMMERCIAL CONSTRUCTION ONLY)

GROUP 1

2010-04-05	25.75	12.40	38.15
2010-05-01	26.60	13.15	39.75

- 601 MECHANIC . WELDER
- 602 TRACTOR TRAILER DRIVER
- 603 TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)

GROUP 2 *

2010-04-05	22.25	11.10	33.35
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- 604 FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK

GROUP 3

2010-04-05	25.10	12.40	37.50
2010-05-01	25.95	13.15	39.10

- 605 BITUMINOUS DISTRIBUTOR DRIVER
- 606 BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)
- 607 THREE AXLE UNITS

GROUP 4

2010-04-05	24.85	12.40	37.25
2010-05-01	25.70	13.15	38.85

- 608 BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)

609	DUMP PERSON				
610	GREASER				
611	PILOT CAR DRIVER				
612	RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS				
613	TWO AXLE UNIT				
614	SLURRY OPERATOR				
615	TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)				
616	TRACTOR OPERATOR, UNDER 50 H.P.				
701	HEATING AND FROST INSULATORS	2010-04-05	34.16	11.75	45.91
		2010-06-01	36.11	11.75	47.86
702	BOILERMAKERS	2010-04-05	34.79	18.07	52.86
703	BRICKLAYERS	2010-04-05	27.81	20.43	48.24
704	CARPENTERS	2010-04-05	26.40	13.80	40.20
705	CARPET LAYERS (LINOLEUM)	2010-04-05	24.80	14.99	39.79
706	CEMENT MASONS	2010-04-05	27.04	15.45	42.49
707	ELECTRICIANS	2010-04-05	31.24	19.84	51.08
		2010-05-30	32.40	20.58	52.98
708	ELEVATOR CONSTRUCTORS	2010-04-05	42.58	21.46	64.04
709	GLAZIERS	2010-04-05	24.85	13.20	38.05
		2010-05-01	26.25	13.20	39.45
710	LATHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
711	GROUND PERSON	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			

712	IRONWORKERS	2010-04-05	29.76	19.50	49.26
713	LINEMAN	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			
714	MILLWRIGHT	2010-04-05	26.09	15.31	41.40
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2010-04-05	27.28	13.20	40.48
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2010-04-05	28.87	15.90	44.77
		2010-05-01	30.47	15.90	46.37
717	PIPEFITTERS . STEAMFITTERS	2010-04-05	35.34	14.97	50.31
		2010-05-01	37.44	14.97	52.41
718	PLASTERERS	2010-04-05	28.17	15.70	43.87
719	PLUMBERS	2010-04-05	35.34	14.97	50.31
		2010-05-01	37.44	14.97	52.41
720	ROOFER	2010-04-05	26.70	15.60	42.30
721	SHEET METAL WORKERS	2010-04-05	29.61	19.98	49.59
722	SPRINKLER FITTERS	2010-04-05	31.26	16.10	47.36
723	TERRAZZO WORKERS	2010-04-05	30.11	17.05	47.16
724	TILE SETTERS	2010-04-05	23.20	19.21	42.41
725	TILE FINISHERS	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVWAGE@STATE.MN.US			

726	DRYWALL TAPER	2010-04-05	27.88	13.20	41.08
727	WIRING SYSTEM TECHNICIAN	2010-04-05	30.98	12.18	43.16
728	WIRING SYSTEMS INSTALLER	2010-04-05	21.68	10.48	32.16
729	ASBESTOS ABATEMENT WORKER	2010-04-05	26.12	14.43	40.55
730	SIGN ERECTOR	2010-04-05	18.07	3.98	22.05

01014 - WORK SCOPE DESCRIPTIONS

1. GENERAL
 - A. This section is intended to clarify the scope of work in each Work Scope.
 - B. The Owner will award Multiple Prime Contracts for the construction of the project.
2. BID PACKAGING
 - A. Work Scopes referenced in this section are for work to be performed at Duluth International Airport, New Passenger Terminal, Bid Package 1, Duluth, MN.
3. SCOPE OF WORK
 - A. The Work Scope categories are constructed to follow as close as possible the CSI format of the contract documents, but also FAA, MNDOT, and City of Duluth Specification Sections. However, Work Scopes may contain work described in more than one specification section and/or parts thereof.
 - B. Local custom and trade-union jurisdictional settlements do not control the scope of work included in each Prime Contract. When a potential jurisdictional dispute or similar interruption of construction activities is first identified or threatened, the affected Contracts shall promptly negotiate a reasonable settlement to avoid or minimize the pending interruption and its delays.
 - C. This section is intended to clarify the scope of work in each Work Scope. Each Work Scope includes all provisions of Division 01 Specifications.
 - D. Unless noted otherwise, each Work Scope shall include the complete labor and materials, equipment, applicable permits and applicable taxes required for the performance of the described work in accordance with the plans and specifications.

01014 - WORK SCOPE DESCRIPTIONS

WORK SCOPE DESCRIPTION INDEX

Work Scope	2.10:	Civil and Site Electrical
	3.10:	Structural Concrete
	4.10:	Masonry
	5.10:	Structural/Miscellaneous Steel
	5.11:	Metal Framing
	7.10:	Metal Panels
	7.11:	TPO Roof
	8.10:	Curtain Wall
	15.10:	Mechanical (Below Grade)
	16.10:	Electrical (Below Grade)

Work Scope 2.10 – Civil and Site Electrical

KA SPECIAL REQUIREMENTS

1.01 CIVIL AND SITE ELECTRICAL

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Include and conform to the necessary specifications Bid Items 1 -146 must conform to:
 - a. MNDOT Standard Specification 2005 Edition
 - b. City of Duluth Standard Specification 2010 Edition
 - c. FAA Standard Specifications

2. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 8	Technical Specifications	Complete
Part 9	Special Provisions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
01732	Selective Demolition	Complete
02220	Building Earthwork	Complete
07210	Thermal Insulation (vertical - below grade)	As it applies
07131	Self-Adhering Sheet Waterproofing	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
 1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.

Work Scope 2.10 – Civil and Site Electrical

KA SPECIAL REQUIREMENTS

- L. **Contract Duration:** This Work Scope will have 87 calendar days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Building and Site Demolition:** Provide miscellaneous site and building demolition indicated on the Drawings to be removed within the construction limits in accordance with Section 01732 including, but not limited to:
 - 1. Selective demolition at existing terminal entrance tunnels as necessary for excavation and utilities.
- P. **Building and Site Demolition:** Provide miscellaneous site and building demolition indicated on the Drawings to be removed within the construction limits in accordance with MNDOT specifications 2103 including, but not limited to:
 - 1. Existing rental care building.
 - 2. Trees and other landscape items for removal.
 - 3. Bituminous and concrete paving indicated for removal.
- Q. **Site Clearing:** Provide general site clearing and preparation work as indicated on the Drawings and including, but not limited to:
 - 1. General site clearing.
 - 2. Demolition and disposal of existing items indicated to be removed.
 - 3. Concrete and asphalt paving indicated to be removal.
 - 4. Curbs, gutters, sidewalks indicated to be removed.
 - 5. Tree removal, including root ball indicated to be removed.
 - 6. Contaminated soils removal and building backfill as per soils engineering report recommendations.
- R. **Building Earthwork:** Provide earthwork as indicated but not limited to:
 - 1. All excavation and backfill necessary for the building and canopy.
 - 2. Mass excavation.
 - 3. Removal and disposal of abandoned utilities occurring within the excavation, and as indicated.
 - 4. Earth stripping and stockpiling.
 - a. Coordinate area available for onsite stockpiling with Kraus-Anderson Construction Company.
 - b. Contaminated soils removal.
 - 5. Grading including rough and fine grading.
 - a. Finish grading and turf establishment.
 - 6. Dewatering as defined herein, and as may become necessary during the construction operations.
 - 7. Special requirements:
 - a. Erosion and sedimentation control as defined herein.
 - b. Soil treatment requirements.
 - c. Soil stabilization requirements including incidental.
 - d. Engineered retention systems to complete your scope.
 - 8. All necessary permits.
- S. **Dewatering Requirements:** Provide all necessary labor and equipment to perform the work of this Work Scope including daily pumping to keep excavated areas dry.
 - 1. Special coordination with concrete trade contractor during footing and foundation work is required.
 - 2. Coordinate extent and duration of dewatering activities with Kraus-Anderson Construction Company.
- T. **Excavation Support Systems:** Provide (engineer, construct, maintain, and monitor) excavation support systems as required:
 - 1. Delegated Design Requirements: Provide professional engineering services as required by this specification Section including engineering analysis, calculations, certified shop and erection drawings for excavation support systems.
 - a. System designed by professional engineer with relevant project experience, and complying with requirements of the Specifications.
 - b. Refer to Kraus-Anderson Subcontract for additional requirements for professional liability coverage.
 - 2. There is NO area for spoils storage on site; spoils are to be removed on a daily basis unless approved by Construction Manager.
- U. **Subdrainage System (drain tile):** Provide sub grade drainage system in accordance with Division 15 including, but not limited to:
 - 1. Foundation drainage system complete including final connections within storm drainage structures as required.
 - 2. Subdrainage piping systems.

Work Scope 2.10 – Civil and Site Electrical

KA SPECIAL REQUIREMENTS

3. Underslab drainage system.
 4. See Plumbing plans and specifications for scope.
 5. Roof drain work by Work Scope 15.10.
- V. **Construction Grading:** Provide and maintain suitable OSHA grades around site and localized excavated areas to accommodate construction activities and equipment access.
1. Coordinate requirements with Kraus-Anderson Construction Company and Architect/Engineer.
- W. **Storm Water Pollution Prevention Plan (SWPPP):** Provide labor and materials to install, maintain, monitor, and remove upon completion all elements and process required to administer the storm water compliance requirements for this Project as outlined within the documents and required by the State.
1. Construction entrances and exit areas
 2. Perimeter control around construction site
 3. Erosion control procedures
 4. Sediment control procedures
 5. Dewatering and drain basin procedures
- X. **Traffic Control:** Provide traffic control spotters/flag personal and have them present at all times during concrete deliveries and pours.
1. Provide traffic and street barrier as required.
 2. Include Allowance as stipulated in Special Provisions Sections.
- Y. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
1. Debris tracked or carried off site into traffic lanes must be cleaned up immediately. If tracking continues, this Work Scope shall provide continuously cleaning operations during activities of this Work Scope.
 2. Hard surface areas shall be broom cleaned upon completion.
- Z. **Restoration of adjacent turf areas damaged by Construction:** This Work Scope is responsible to restore disturbed turf areas with sod (seeding is not acceptable) in accordance with requirements of MNDOT Specifications - Landscaping.
- AA. **Asphalt Paving:** Provide general site clearing and preparation work in accordance with MNDOT Specifications, and as indicated on the Drawings.
- BB. **Concrete Paving:** Provide general site clearing and preparation work in accordance with MNDOT Specifications, and as indicated on the Drawings.
- CC. **Site Utilities:** Provide and install all site utilities per MNDOT Specifications.
1. Private laterals stubbed into building - by others (domestic water, fire suppression water, sanitary sewer and storm).
 2. Coordinate with Work Scope 15.10 for scope interface.
- DD. **Building Excavation and Backfill:**
1. Include all sheet waterproofing and vertical insulation to elevation 4.00 feet A.F.F. Fasten insulation as approved by Architect/Engineer.
 2. Payment via lump sum unit price on the Unit Price schedule.
- EE. **Terminal Building Work:** All costs associated with Specification Sections listed in 1.01 - Part 2 above shall be included within the line item #113 - Terminal Building Work.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Soil Borings:** See Geotechnical Reports, Part 10 - Appendix of the Specifications.
- B. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 11 of the Specifications for All Work Scopes.
1. This Work Scope is responsible for all remaining layout required for this Work Scope.
 2. Layout and engineering for shoring and temporary supports shall be included.
 3. Layout and saw cutting, wall removals, shoring, installation of necessary support steel headers shall be included and as required.
- C. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptance of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.

Work Scope 2.10 – Civil and Site Electrical

KA SPECIAL REQUIREMENTS

- D. **Multiple Mobilizations, Off Peak Shifts and Minimum Work Force:** To comply with the Project Schedule and phasing requirements, multiple mobilizations may be required. Refer to Project Schedule for additional requirements.
 - 1. Coordinate requirements with Kraus-Anderson Construction Company.
- E. **Coordination with Others:** Include coordination with other trades, including but not limited to the following:
 - 1. Utility and foundation work.
- F. **Deep Utility excavations:**
 - 1. Soil retention system will require 3rd Party Engineering.
 - 2. Coordination of temporary utility work within building footprint will be required with other work scopes.
- G. **Excavations for other work scopes:**
 - 1. Must be OSHA approved.
 - 2. Excavation widths and grades must be acceptable for other trades to work efficiently.
- H. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 ALLOWANCES

- A. **Subcontractor Allowances:** Include as required per specific Specifications Sections including, but not limited to:
 - 1. Allowance for MN Power Utility Relocation. See Special Provisions Section.
 - 2. Allowance for Qwest Utility Relocation. See Special Provisions Section.
 - 3. Allowance for Traffic Control. See Special Provisions Section.

1.05 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.06 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.
 - 1. Shop Drawings: Indicating the pile locations, pile numbers and installation sequence along with your expected construction procedures.
 - 2. As-Built Piling Logs: Maintain daily detailed piling logs indicating layout, number and length piles installed, comments regarding installation.
 - a. Submit record copy to Kraus-Anderson upon request and at completion of deep foundations.
- B. **Requirements for Delegated Design – Third Party Engineering.**
 - 1. Qualification of Design Engineer:
 - 2. Certificate of Insurance for Errors and Omissions per Contract requirements.

1.07 UNIT PRICES AND COST BREAK DOWNS

- 1. This Work Scope bidder must fill-out the complete Bid Form Packet including Schedules; total Schedules, and carry Total forward to Item 1. Base Bid for Work Scope 2.10 Civil and Site Electrical on Page 2 of the Bid Form.

1.08 ALTERNATES

- A. Alternate No. 1: General parking surfacing.
- B. Alternate No. 2: Perimeter fence.

-- End --

Work Scope 2.10 – Civil and Site Electrical

KA SPECIAL REQUIREMENTS

COMPILATION SET

Addendum No. 1, 6-11-2010

Work Scope 2.10 - Civil and Site Electrical

1. Under 1.01, Part A., Item 1., change Bid Items 1 - 146 must...to Bid Items 1 - 148 must conform to:
2. Under 1.02, Part EE. Terminal Building Work: Replace "...item #113" with "item #115".
3. Under 1.02, ADD Item FF. Site Electrical: Include all work on plan sheets E100 thru E106, and E 400 within VOL 1 plan set. Plan sheet ET010 in VOL 2 plan set is part of Work Scope 16.10.
4. Under 1.03, Part B. Field Engineering: Replace Item 1 with:
 1. Civil work outside of the building footprint must review and include all scope required within the Special provisions. The Construction Manager (KA) is not responsible for surveying/staking needs in these areas.
 - 1a. Surveying and staking for work within the building footprint: The CM will provide the standard surveying for the building, including staking all of the gridlines and offsets. (One initial set and one set of offsets. This Work Scope will be required to take the offsets and carry them into the excavations and top of walls, etc as required. The CM may double check random elevations and locations at no cost to this Work Scope.

CLARIFICATION, 6/17/2010

Work Scope 2.10 CIVIL and SITE ELECTRICAL:

- 1) This work scope is responsible for the entire draintile system with the exception of the pumps called out in the Pump Schedule on Plan Sheet P501. This work scope DOES INCLUDES the CAST IRON - Concrete ENCASED settling basin AND the Sump pump basins. Refer to detail 10 on P401.

NOTE: Cast iron basins are NOT available - so Fiberglass they will be.

Work Scope 3.10 – Structural Concrete

KA SPECIAL REQUIREMENTS

1.01 STRUCTURAL CONCRETE

- A. **Specific Work Scope:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
03100	Concrete Formwork	Complete
03200	Concrete Reinforcement	Complete
03300	Cast-In-Place Concrete	Complete
07210	Thermal Insulation (horizontal)	As it applies
07260	Reinforced Underslab Vapor Retarders	Complete
07920	Joint Sealants	As it applies

2. Items specified in other Sections, but installed by this Work Scope
- | | |
|-----------------------|------------------------------------|
| Division 05 Embeds | As it applies
Installation Only |
|-----------------------|------------------------------------|

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.

Work Scope 3.10 – Structural Concrete

KA SPECIAL REQUIREMENTS

- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 100 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. Provide all equipment for this contractor's work, including cranes, conveyors and/or concrete pumps as may be necessary.
- P. All grouting operations, including column base plates, other plates and sills as shown or required, all concrete additives, hardeners, curing, sealing and dust proofing compounds.
- Q. Include all cast-in-place pads for mechanical and electrical equipment.
- R. Provide layout of lines and elevations as required for this contractor's work.
- S. Air floor ducting and concrete topping in future Bid Package.
- T. **Subgrade Preparation:** Provide hand excavation and fine grading associated with concrete work, including bottom of footings and slab-on-grade conditions in accordance with Division 03 including, but not limited to:
 - 1. Fine grading and hand excavations of subgrade are the responsibility of this Work Scope. Coordinate with Work Scope 2.10.
- U. **Concrete Formwork:** Provide (engineer, furnish and install) concrete formwork in accordance with Section 03100 including, but not limited to:
 - 1. Includes temporary shoring or bracing as required, including form shoring, decking, and re-shoring required for pan and joist construction.
 - 2. Underslab vapor retarders.
 - 3. Rigid insulation directly under, or within floor assembly used as forming material.
- V. **Concrete Reinforcing Steel:** Provide (furnish and install) reinforcing steel as shown and indicated in the contract documents, and in accordance with Section 03200.
- W. **Cast-In-Place Concrete:** Provide cast-in-place concrete work in accordance with Section 03300 including, but not limited to:
 - 1. Footings, foundations, poured beams, columns and other structural members.
 - 2. Slab on grade and elevated slabs, structural concrete only.
 - 3. Metal pan stair infills.
 - 4. Vapor barriers and waterstop material and systems specified.
 - 5. Layout and forming of opening shown.
 - 6. Placement and finishing operations to achieve specified results, including special screeds to achieve elevations, flatness, and levelness requirements specified.
 - 7. Pointing, patching, rubbing, grinding, and filling of concrete surfaces scheduled to receive final finish.
 - 8. Interior pipe bollards: excavation, setting, placement and filling of pipe bollards (four total). Provided by Work Scope 5.10. No paint or covers in the Bid Package.
 - 9. Non-slip additives, hardeners, and special coatings as indicated.
 - 10. Structural and infill grouting as indicated.
 - 11. Curing methods specified.
 - 12. Sill plates, bearing plates, expansion joints and joist pockets.
 - 13. Include pads at stairs.
 - 14. Coordination of temporary utility work by other work scopes with footing and foundation work.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the specifications.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
 - 2. Detailed surveying and layout of footings, foundations, and slab work are the responsibility of this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.

Work Scope 3.10 – Structural Concrete

KA SPECIAL REQUIREMENTS

- C. **Winter/Cold Weather Conditions:** Include costs for winter conditions, i.e., blankets for during times requiring protection and including, but not limited to:
1. Concrete heating and cover as required.
 2. Cost of fuel and related heating equipment, unless specifically indicated otherwise.
 3. Snow removal.
- D. **Special Scheduling Requirements:** Multiple crews as required to maintain project schedule.
- E. **Coordination with other Contractors:** Notify Kraus-Anderson Construction Company when foundations are ready for waterproofing and backfill.
- F. **Embeds within Cast-in-place Concrete:** Include layout and installation of embeds within cast-in-place concrete, including but not limited to the following:
1. Responsibility to receive, unload, and transport to install, erect or setting location, and to ensure alignment, connection to reinforcement where required, and protection during placement of concrete.
 - a. Detailed layout and installation drawings of embeds will be provided by Work Scope which requires embed.
 2. Anchor bolts, metal nosings, and miscellaneous metals cast into concrete.
 3. Embeds and channel inserts shall be furnished by Work Scope which requires the embed.
 4. Provide sleeves for hand rails and guard rails where railings are indicated on concrete substrate.
 5. Embeds and blockouts for curtain walls anchors.
 6. Elevator hoist way embeds (supplied by others).
- G. **Coordination of Embeds set by Others:** Include coordination for embeds set by other Work Scopes, including but not limited to the following:
1. Elevator Work Scope will install elevator embeds and sleeves for their work.
 2. Plumbing Work Scope will set drain assemblies and related sumps within concrete formwork where drains are required to be poured within the concrete.
 3. Mechanical Work Scope will install sleeves and embeds for their work.
 4. Electrical Work Scope will install sleeves, embeds, conduit, and boxes required to be poured within the concrete for their work.
 5. This Work Scope is responsible for layout and forming of blockouts indicated, and to ensure alignment, connection to reinforcement where required, and protection during placement of concrete.
- H. **Protection of Embeds and Reinforcing:** Properly protect reinforcing, anchor bolts, embeds, etc. protruding beyond the surface in accordance with OSHA standards. This includes trip hazards.
- I. **Spalling caused by Embeds:** Anchors and embeds shall be "non-spalling" design. Spalling, which occurs, will require patching in accordance with direction from the Architect and Contractor.
- J. **Grouting required by this Work Scope:** This Work Scope shall include the following:
1. Grouting of all base plates.
- K. **Exposed Surfaces:** Refer to Specifications for specific requirements, but not less than:
1. Include pointing, patching, rubbing and grinding, removal of form ridges, coating of concrete surfaces to receive final finish in accordance with contract documents.
 2. Outside Corners: Include chamfered edges on outside corners, unless specifically detailed otherwise.
 3. Surfaces in tug tunnel must have surfaces finished to receive paint.
- L. **Surfaces to Receive Waterproofing:** Refer to specifications for specific requirements, plus include chamfered edges on outside corners of foundation walls scheduled to receive dampproofing or waterproofing.
- M. **Special Safety Requirements:** This Work Scope is responsible for the installation and maintenance of temporary handrails, guardrails, toe boards, cable rails, and supports for the same at perimeter of the structure, leading edges, elevator openings, stair openings, stair handrails, mechanical openings, and other openings required to be protected by OSHA regulations.
1. This Work Scope will provide (furnish and install) the cable and clamps required materials.
 2. Removal protection, other than at leading edges, will be by subcontractor requiring access.
 3. Leading edge protection will be removed by this Work Scope.
 4. Reinforcing bars, anchor bolts, embeds, etc., protruding beyond the surface shall be properly protected per OSHA Standards, including trip hazards.
- N. **Dewatering:** Minor dewatering during concrete forming, placement, and initial curing operations of this Work Scope to keep excavation area free of water. Coordinate requirements and procedures with Civil Work Scope 2.10.

Work Scope 3.10 – Structural Concrete

KA SPECIAL REQUIREMENTS

- O. **Concrete Pumping:** Included by this Work Scope.
 - 1. If trade contractor elects to use a central concrete placement system, location shall be coordinated and approved by Kraus-Anderson Construction Company.
- P. **Concrete Wash-Down:** Excess and wash up concrete distributed within construction limits will be removed and disposed of on a DAILY basis. In addition to the concrete pour clean up, non-usable material will be cleaned up daily and disposed of in accordance with the SWPPP plan.
- Q. **Quality Control:** Flatness conditions should be maintained per the contract documents.
- R. **Special Inspections:** Special and structural inspections will be done in accordance with the Contract Documents prior to placement of concrete. Special Inspector or Structural Engineer reserve right to inspect at both the truck location and hose discharge location.
- S. **Traffic Control:** Provide traffic control spotters/flag personal and have them present at all times during concrete deliveries and pours as necessary.
- T. **Site Cleaning:** Debris tracked or carried off site into traffic lanes must be cleaned up immediately. If tracking continues, this Work Scope shall provide continuously cleaning operations during activities of this Work Scope.
- U. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.05 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.
- B. **Quality Control Submittals:** In accordance with specification sections, submit mill reports and concrete trip tickets to Kraus-Anderson's Superintendent with each delivery.

1.06 UNIT PRICES, EQUIPEMENT RENTAL, AND LABOR RATES

- A. Provide the following unit prices, equipment rental, and labor rates specific to this Work Scope Category:
 - 1. Unit Price No. 1 - Price per in place cubic yard of structural concrete including all forming and pouring.
 - 2. Unit Price No. 2 - Price per ton of reinforcing steel (placing included).

-- End --

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 3.10 - Structural Concrete

- 1. Under 1.02, Part E. Winter conditions: Delete the words "heat equipment, fuel".
 - A. Add item 1. Snow removal - if required, will be the responsibility of this work scope.
 - B. Add item 2. Any winter conditions costs to complete your work.
 - C. Add item 3. Frost removal for the on grade pour, if required will be the responsibility of the CM.
- 2. Under 1.02, Part S. Replace with: Air floor ducting and concrete toppings on 2nd and 3rd floors in a future Bid Package.

Work Scope 3.10 – Structural Concrete

KA SPECIAL REQUIREMENTS

3. Under 1.03, Part A. Field Engineering: Item 1: Replace Item 1 with: Surveying and staking for work within the building footprint: The CM will provide the standard surveying for the building, including staking all of the gridlines and offsets. (One initial set, one set of offsets and a benchmark per floor). This Work Scope will be required to take the offsets and carry them into the excavations and top of walls, etc as required. The CM may double check random elevations and locations at no cost to this Work Scope. This Work Scope is responsible for all remaining layout.
4. The entire building concrete slab on grade work, including vapor barrier and horizontal rigid insulation is within this work scope.

CLARIFICATION, 6/17/2010

Work Scope 3.10 Structural Concrete: Will be required to INSTALL the Trench drain system PROVIDED by Work Scope 15.10.

Work Scope 4.10 – Masonry KA SPECIAL REQUIREMENTS

1.01 MASONRY

- A. **Specific Work Scope:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
04200	Unit Masonry	Complete
07210	Thermal Insulation (behind their work)	As it applies

Components integral to Masonry Assembly

03200	Reinforcing Steel within masonry assemblies	As it applies
07920	Sealant joints occurring within and around masonry walls	As it applies

2. Items specified in other Sections, but installed by this Work Scope
- | | | |
|-------|---|------------------------------------|
| 05500 | Steel lintels and loose angles occurring within masonry | As it applies
Installation Only |
|-------|---|------------------------------------|

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.

Work Scope 4.10 – Masonry

KA SPECIAL REQUIREMENTS

- L. **Contract Duration:** This Work Scope will have 45 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Unit Masonry:** Provide unit masonry in accordance with Section 04200 including, but not limited to:
 - 1. Concrete masonry work indicated (structural and elevator shafts only).
 - 2. 4" scored face CMU, rigid insulation and vapor barrier on Gridline H.
 - 3. CMU wall on First Floor Gridline G.
 - 4. No CMU work at restrooms (future Bid Package work).
 - 5. Provide reinforcing steel within unit masonry assemblies in accordance with requirements for Section 03200 and 04200 and as indicated.
 - 6. Installation of loose angles and steel lintels occurring within masonry assemblies.
 - 7. Non-load bearing CMU work will be part of future Bid Package.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the specifications.
 - 1. This Work Scope is responsible for all remaining layout.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **Surface Preparation for Masonry to receive Final Finishes:** Provide masonry pointing, patching, filling, grinding of new or existing masonry surfaces necessary to achieve acceptable substrate for final finishes specified in accordance with Contract Documents.
- D. **Special Safety Requirements:** This Work Scope is responsible for the installation and maintenance of temporary handrails, guardrails, toe boards, cable rails, and supports for the same at perimeter of the structure, leading edges, stair handrails, and other openings required to be protected by OSHA regulations for your required work areas.
- E. Reinforcing bars, anchor bolts, embeds, etc., protruding beyond the surface shall be properly protected per OSHA Standards, including trip hazards.
- F. **Special Coordination:** Special coordination and detailing will be required at the conditions indicated below, including cutting, fitting, and sealants around penetrations and accessories.
 - 1. Penetrations within the exterior wall for exterior signage and lighting.
- G. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
 - 1. Materials to be removed and disposed in Kraus-Anderson dumpster.
- H. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.
- I. **Grout/Mortar Wash-Down:** Excess and wash up grout/mortar distributed within construction limits will be removed and disposed of on a DAILY basis. In addition to the grout/mortar clean up, non-usable material will be cleaned up daily and disposed of in accordance with the SWPPP plan.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.05 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.
- B. **Quality Control Submittals:** In accordance with specification sections, submit test data and mix designs.

-- End --

Work Scope 4.10 – Masonry

KA SPECIAL REQUIREMENTS

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 4.10 - Masonry

1. Under 1.02., Part O, Add Item 8: Include all rigid insulation, vapor barrier and flashings concealed by your work.

Work Scope 5.10 – Structural/Miscellaneous Steel

KA SPECIAL REQUIREMENTS

1.01 STRUCTURAL/MISCELLANEOUS STEEL

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
05120	Structural Steel	Complete
05121	Architecturally Exposed Structural Steel	Complete
05310	Steel Roof Deck	Complete
05360	Composite Steel Deck	Complete
05500	Metal Fabrications	Complete
05510	Metal Stairs	Complete
05521	Pipe and Tube Railings	Complete
05530	Metal Gratings	Complete
09960	High Performance Coatings	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10, and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, OSHA, AISC certification fabricator and erector.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.

Work Scope 5.10 – Structural/Miscellaneous Steel

KA SPECIAL REQUIREMENTS

- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 90 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Structural Steel Framing:** Provide structural steel framing including but not limited to:
 - 1. Shop drawings and connection detailing.
 - 2. Fabrication.
 - 3. Shop priming and painting where specified.
 - 4. Members and profiles indicated and sized on Structural Drawings.
 - 5. Delivery.
 - 6. Erection:
 - a. Provide (furnish and install) sheer studs at tops of beams where indicated.
 - b. Structural connection bolts shall be tension controlled (twist-off) torque bolts, unless specifically indicated otherwise on Structural Drawings.
 - 7. Include supply and installation of elevator hoisting beams.
- P. **Metal Decking:** Provide metal decking including but not limited to:
 - 1. Shop drawings and connection detailing.
 - 2. Fabricate deck to type and profiles indicated.
 - a. Provide complete with necessary accessories, sheet metal closures, concrete stops, joint tapes, and other materials required for a complete installation.
 - b. Clarification – Deck fabricator shall warrant that deck, when properly installed, requires no shoring to prevent deflection of metal deck during or after concrete placement.
 - 3. Shop priming and painting where specified.
 - a. This Work Scope is responsible to ensure compatibility of shop primer with finish coats.
 - 4. Delivery.
 - 5. Erection:
 - a. Provide (furnish and install) sheer studs at composite deck where indicated.
 - b. Field cutting and shaping of steel deck as may be required.
- Q. **Metal Stairs:** Provide and install metal stairs assemblies in accordance with Section 05510 including, but not limited to:
 - 1. Include all necessary supports and anchors necessary for a complete installation.
- R. **Interior pipe bollards:** Include four (4) each. Install by Work Scope 3.10.
- S. **Connection, subcomponent engineering, and special erection sequencing requirements:** Where required by Contract Documents, or where connection detailing is requirement of fabricator for design members and connections not indicated on the Contract Documents.
 - 1. Where Project Schedule requires special erection sequencing not specifically addressed by the structural design, provide engineering services to accommodate special sequencing, temporary bracing, and erection loads.
 - 2. Delegated Design Requirements: For those specific portions of the Work requiring professional engineering services by Section 05120 including engineering analysis, calculations, connection details, shop and fabrication drawings, embed placement drawings, and erection drawings.
- T. **Coordination of Embeds set by Others:** Include coordination for embeds set by others, including but not limited to the following:
 - 1. Anchor bolts.
 - 2. Embed plates and brackets (shown or not).
 - 3. Channel inserts used to secure work of this Section.
 - 4. Elevator hoist way embeds.
 - 5. Trade contractor requiring embeds will provide embeds and setting drawings to locate and specify anchorage requirements.
- U. **Anchors and Embeds:** Comply with the following.
 - 1. Anchors used in concrete slabs or walls must be of a "non-spalling" type anchor.
 - 2. Detailed layout drawings of embeds are to be provided by this Work Scope for use by setting contractor.

Work Scope 5.10 – Structural/Miscellaneous Steel

KA SPECIAL REQUIREMENTS

3. Concrete Work Scope will place embeds within concrete work, unless specifically note otherwise in this Work Scope Description or required by your quality control procedures.
 4. Include all angle embeds and grating required for trench drains.
 5. Include leveling nuts for ALL embeds.
- V. **On-site Handling of Embeds and Items for Installation:** Installation, erection and setting requirement includes the obligation for proper receiving, unloading and transport to install, erect or setting location.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the specifications.
 1. This Work Scope is responsible for all remaining layout.
 2. Layout and engineering for shoring and temporary supports shall be included.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **Special Protection:** Take special care while working above other trades and to provide protection necessary to protect trades below from falling objects and sparks.
- D. **Special Inspections:** Special and structural inspections will be done in accordance with the Contract Documents.
- E. **Perimeter and Slab Edge Protection:** This Work Scope is responsible to furnish, install, and maintain perimeter barricades and interior opening barricades at supported decks in accordance with OSHA requirements and as directed by Kraus-Anderson until exterior enclosure meets protection requirements or otherwise directed by Kraus-Anderson Construction Company.
 1. Remove barricades when directed by Kraus-Anderson.
- F. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
- G. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 1. This trade contractor will be required to participate in this effort.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.05 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.

1.06 UNIT PRICES, EQUIPEMENT RENTAL, AND LABOR RATES

- A. Provide the following unit prices, equipment rental, and labor rates specific to this Work Scope Category:
 1. Unit Price No. 3 - Price per ton, to supply and install additional structural steel. Requested by Architect/Engineer.

-- End --

COMPILATION SET

Addendum No.1, 6-11-2010

Work Scope 5.10 - Structural/Miscellaneous Steel

1. Under 1.02, Part E. Winter conditions: Delete the words "heat equipment, fuel".
 - A. Add item 1. Snow and frost removal - if required, will be the responsibility of this work scope.
 - B. Add item 2. Any winter conditions costs to complete your work.

Work Scope 5.10 – Structural/Miscellaneous Steel

KA SPECIAL REQUIREMENTS

2. Under 1.03, Part A. Field Engineering: Replace Item 1 with: The CM will provide the standard surveying for the building, including staking all of the gridlines and offsets. (One initial set, one set of offsets, and a benchmark per floor). This Work Scope will be required to take the offsets and transfer as required. The CM may double check random elevations and locations at no cost to this Work Scope. This Work Scope is responsible for all remaining layout.

CLARIFICATION, 6/15/10

WORK SCOPE 5.10 WILL BE REQUIRED TO CONFORM TO THE 09960 SPEC FOR ALL STRUCTURAL STEEL. (NOT JUST THE PUBLIC VIEW STEEL)

CLARIFICATION, 6/14/2010

Work Scope 5.10 includes only Stairs 190/290/390 and 191/291/391.

Also, the scope of High Performance Coatings includes the complete High Performance Coating system for the steel elements included in BP1.

Work Scope 5.11 – Metal Framing

KA SPECIAL REQUIREMENTS

1.01 METAL FRAMING

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
05400	Cold-Formed Metal Framing	Complete
06100	Rough Carpentry	Complete
06160	Sheathing	Complete
07210	Thermal Insulation	As it applies
07241	Polymer-Based Exterior Insulation and Finish System (EIFS)	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 75 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.

Work Scope 5.11 – Metal Framing

KA SPECIAL REQUIREMENTS

- O. **Complete and Functional System:** Provide complete functional system consistent with the design intent of the specifications sections identified above and other project documents.
 - 1. Items not shown but necessary to provide a properly functioning system shall be included in this Work Scope.
 - 2. Include fasteners, bracing, stiffeners, and supplementary framing as required for a complete system.
- P. **Cold-Formed Metal Framing (exterior steel stud wall assemblies):** Provide exterior cold-formed metal framing and related sheathing including, but not limited to:
 - 1. Structural metal stud framing (axial loaded - load bearing studs).
 - 2. Exterior steel studs (lateral loaded - wind load).
 - 3. Exterior sheathing.
 - 4. Structural metal stud roof joists.
- Q. **Rough Carpentry:**
 - 1. All wood blocking for roof, building enclosure and all openings.
 - 2. All wood sheathing.
- R. All concealed insulation (rigid and batt).

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the Specifications for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **Special Safety Requirements:** This Work Scope is responsible for the installation and maintenance of temporary handrails, guardrails, toe boards, cable rails, and supports for the same at perimeter of the structure, leading edges, stair handrails, and other openings required to be protected by OSHA regulations for your required work areas.
- D. **Special Coordination at Exterior Envelope (Vapor Barriers / Thermal Enclosure):** Construction exterior enclosure to ensure continuous thermal insulation and vapor barrier as indicated or required.
- E. **Sealants at Exterior Sheathing:** Provide sealants or joint tape as specified, within field and around perimeter of exterior sheathing.
 - 1. Coordinate scope and compatibility of joint sealant with requirements for weather barrier.
 - 2. Include exterior cosmetic caulking at perimeter of window frames and to other dissimilar materials.
 - 3. Interior cosmetic caulking to the gypsum board or window stools will be by others.
 - 4. Include expansion material and insulation within, behind or immediately abutting to the window or framing.
- H. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.05 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.
- B. **Requirements for "Delegated Design – Third Party Engineering - (shop drawing Engineering).**
 - 1. Qualification of Design Engineer.
 - 2. Certificate of Insurance for Errors and Omissions per Contract requirements.

-- End --

Work Scope 5.11 – Metal Framing

KA SPECIAL REQUIREMENTS

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 5.11 - Metal Framing

1. Under 1.02, Part E. Winter conditions: Delete the words "heat equipment, fuel".
 - A. Add Item 1. Snow and frost removal - if required, will be the responsibility of this work scope.
 - B. Add Item 2. Any winter conditions costs to complete your work.
2. Under 1.02., Part R., Add: This includes all insulation and vapor barrier concealed by work which cannot be accessed after this Bid Package work is complete. Scope of this also includes areas above grade where this work scope may not have framing.

Work Scope 7.10 – Metal Panels

KA SPECIAL REQUIREMENTS

1.01 METAL PANELS

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
07210	Thermal Insulation	As it applies
07413	Insulated Core Metal Wall Panels	Complete
07610	Sheet Metal Roofing	Complete
07620	Flashing and Trim	As it applies
07920	Joint Sealers	As it applies
10200	Louvers and Vents	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical work week will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 90 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.

Work Scope 7.10 – Metal Panels

KA SPECIAL REQUIREMENTS

- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- P. **Rough Carpentry:** Provide (furnish and install) rough carpentry and related work items including, but not limited to:
 - 1. Wood backing/blocking material within metal panel assembly, if required.
- Q. **Metal Wall Panels:** Provide metal wall panels in accordance with Sections 07413 and 07415 including, but not limited to:
 - 1. Special warranty as specified in specifications.
 - 2. Subgirts and secondary framing behind panels as indicated or required to maintain deflection requirements from primary steel indicated.
 - a. Provide Delegated Design requirements as per specifications.
 - 3. Provide complete assembly with prefabricated mitered corners as per specifications.
 - 4. Non-insulated interior metal panel liners where indicated.
 - 5. Non-insulated profile metal panels.
 - 6. Concealed insulation within field-assembled metal panel to achieve R-values specified.
 - 7. Insulated metal panels.
 - 8. Related perimeter flashing and trim as indicated or required for complete assembly.
 - 9. Parapet copings at top of metal panel assemblies.
- R. **Composite Metal Panels:** Provide composite metal panels in accordance with Section 07415, including, but not limited to:
 - 1. Special warranty as specified in specifications.
 - 2. Subgirts and secondary framing behind panels as indicated or required to maintain deflection requirements from primary steel indicated.
 - a. Provide Delegated Design requirements as per specifications.
 - b. Coordinate with Work Scope 5.11 as necessary.
- S. **Complete Assembly:** Provide fasteners, sealant, trim, flashing and counter flashings for a complete system, including but not limited to, flashings, counter flashing, sheet metal, and sealants necessary within your systems and adjacent to other dissimilar materials.
- T. **System Engineering:** Provide complete design, supply and installation of required anchorage/support systems necessary for the complete installation of your work (including engineered calculations) above and beyond what is depicted on the drawings and specifications.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Special Coordination at Exterior Envelope (Vapor Barriers / Thermal Enclosure):** Construction exterior enclosure to ensure continuous thermal insulation and vapor barrier as indicated or required (walls, soffits, parapets, and insulated canopies).
- B. **Special Safety Requirements:** This Work Scope is responsible for the installation and maintenance of temporary handrails, guardrails, toe boards, cable rails, and supports for the same at perimeter of the structure, leading edges, stair handrails, and other openings required to be protected by OSHA regulations for your required work areas.
- C. **Sealants:** Provide sealants for metal panels within and around metal panel assemblies in accordance with requirements of Section 07920.
- D. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the Specifications for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
 - 2. Layout and engineering for shoring and temporary supports shall be included.
 - 3. Layout and saw cutting, wall removals, shoring, installation of necessary support steel headers shall be included and as required.
- D. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

Work Scope 7.10 – Metal Panels

KA SPECIAL REQUIREMENTS

1.04 ALLOWANCES

- A. **Field Water Testing:** Include **\$2,500 of allowance** for incidental materials and labor to assist Owner's testing agency to perform field testing as directed.

1.05 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.06 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.
- B. **Requirements for "Delegated Design – Third Party Engineering:** (shop drawing and engineering).
 - 1. Qualification of Design Engineer.
 - 2. Certificate of Insurance for Professional Liability Insurance per Contract requirements.

-- End --

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 7.10 - Metal Panels

1. Under 1.01, Part A, Item 1. Add: **07415 Composite Wall Panels Complete.**
2. Under 1.02, Part E. **Winter Conditions:** Delete the words "heat equipment, fuel".
 - A. Add Item 1. **Snow and frost removal - if required, will be the responsibility of this work scope.**
 - B. Add Item 2. **Any winter conditions costs to complete your work.**
3. Under 1.02, Part P., **Rough Carpentry:** Delete in its entirety.
4. Under 1.02, Part Q., Item 2. Delete a: **Provided Delegated Design requirements as per specifications.**
5. Under 1.02, Part Q., Delete Items 4, 5, 6 and 9.
6. Under 1.04, Part A. **Field Water Testing:** Change the \$2,500 allowance to a \$5,000 allowance.
7. Under 1.06, Part B. **Requirements for "Delegated Design - Third Park Engineering:** Delete in its entirety.

Work Scope 7.11 – TPO Roof KA SPECIAL REQUIREMENTS

1.01 TPO ROOF

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
06100	Wood blocking within membrane roof assemblies	As it applies
07543	Thermoplastic Polyolefin (TPO) Roofing	Complete
07620	Flashing and Trim	Complete
07710	Roof Specialties	Complete
07920	Joint Sealers	As it applies

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 45 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.

Work Scope 7.11 – TPO Roof KA SPECIAL REQUIREMENTS

- O. **Thermoplastic Membrane Roofing (TPO, PVC):** Provide thermoplastic membrane roofing systems in accordance with Section 07543, including, but not limited to:
 - 1. Special submittal requirements specified under this Section.
 - 2. Coordinate requirements for blocking within roof assembly to achieve specified warranties. Refer to Section 06100.
 - 3. Vapor barrier where indicated or required by specifications.
 - 4. Roof insulation as required to achieve manufacturer's roof warrant as specified.
 - 5. Thermoplastic roof membrane as indicated.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the Specifications for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
 - 2. Layout and engineering for shoring and temporary supports shall be included.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **Special Coordination at Exterior Envelope (Vapor Barriers / Thermal Enclosure):** Construction exterior enclosure to ensure continuous thermal insulation and vapor barrier as indicated or required (walls, soffits, parapets, and insulated canopies).
- D. **Building Insulation:** Provide "building insulation" in addition to roofing insulation at locations integral with this Work Scope, including insulation that is covered up by this Work Scope's installations or is required to complete this Work Scope.
 - 1. Insulation in connection with roofing work including insulation between other dissimilar material.
 - 2. Include tapered insulation where indicated and as required to achieve positive slope and drainage.
 - a. Standing water, or visual indications of standing water, are not acceptable and additional tapered insulation shall be added to eliminate standing water.
 - 3. Roof curbs as indicated and required (both field fabricated and prefabricated curbs).
 - 4. Gypsum board, gypsum sheathing, or other material required to go over metal deck or underneath roof insulation.
 - 5. Include roofing material on the backside and top of parapet walls per documents.
- E. **Sealants:** Provide sealants for roofing and sheet metal work associated with roof assemblies in accordance with requirements of Section 07920 and roof manufacturer's requirements.
 - 1. Provide associated sealants to achieve a complete watertight assembly under this Work Scope.
 - 2. Roof Specialties:
 - a. copings and pipe penetration flashing.
 - b. roof hatches and necessary components integral with roof hatches
- F. **Roof Penetrations:** Includes architectural, structural, mechanical and electrical penetrations indicated or required, including penetrations and supports for window washing tie-backs and davit bases.
 - 1. Refer to structural, mechanical, and electrical drawings for scope of additional penetration not indicated on architectural documents.
- G. **Metal Flashing:** Provide flashing for a complete system including, but not limited to:
 - 1. Sheet metal flashing, drip edges, inside and outside corners.
 - 2. Copings, gravel stops, scuppers and down spouts
 - 3. Counter flashing, copings, flashings for mechanical equipment and penetrations by other trades work.
 - 4. Sheetmetal work necessary or required to complete the roofing systems and achieve a watertight assembly.
 - 5. Roof control joints and related materials as specified.
 - 6. Reglets and inserts into adjacent construction required to achieve watertight assembly is part of this Work Scope.
- H. **Roof Expansion Assemblies:** Provide at locations indicated and in compliance with manufacturer's requirements. If manufacturer's requirements are different from Contract documents submit RFI for clarification.
 - 1. Provide roof expansion assemblies.
 - 2. Provide compressible insulation or fire safing insulation within roof expansion joint assemblies.
 - 3. Provide pre-formed foam sealant expansion joints at all locations required.
- I. **Roof Drains:** Proper connection of roofing to drains is by this Work Scope. Setting of drains to elevations is by Mechanical Work Scope.

Work Scope 7.11 – TPO Roof

KA SPECIAL REQUIREMENTS

- J. **Roof Walkway Pads:** Install at locations indicated, but not less than that required to provide protected access to mechanical and electrical equipment.
 - 1. Adjust configuration as directed by Architect or Kraus-Anderson.
 - 2. Coordinate extent with mechanical and electrical prior to submitting shop drawings.
- K. **Perimeter and Opening Protection:** This Work Scope is responsible for removal and replacement of perimeter protection, and removal and replacement of protection at all floor openings if required for the installation of its work. Provide temporary perimeter and opening protection and other required safety devices when working at floor openings and perimeters.
 - 1. Provide and maintain OSHA approved temporary guardrails and fall protection as required.
- H. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 QUALITY ASSURANCE REQUIREMENTS

- A. **Manufacturer's Field Services:** Include coordination and related costs to include membrane manufacturer's technical representative services as specified, but not less than the following:
 - 1. After installation is complete, arrange for representative of roofing membrane manufacturer to inspect roof to verify materials and installation comply with roofing membrane manufacturer's specifications.
 - 2. Issue report to Kraus-Anderson indicating installation complies with manufacturer's requirement to achieve specified warranties and requirements of Contract Documents.
 - a. If manufacturer's field representative can not issue above report, roofing contractor shall make necessary modifications to comply at no cost to contract.
- B. **Roof Warranties:** Include special warranties as specified. Coordinate terms and conditions with system manufacturer to comply with Contract Documents.
- C. **Testing:** cooperate fully with the Owner's testing agent.
 - 1. Include cost for labor to support field inspection and subsequent patching of test areas for testing or inspections required by owner's testing agency, municipal or insurance entities.

1.05 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.06 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.

-- End --

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 7.11 - TPO Roof

- 1. **Change Work Scope 7.11 - TPO Roof to Work Scope 7.11 - EPDM Roof.**
- 2. **Under 1.01, Part A, Delete Section 07543 Thermoplastic Polyolefin (TPO) Roofing and replace with Section 07531 Ethylene-Propylene-Diene-Monomer (EPDM) Roofing Complete.**
- 3. **Change any reference to TPO Roof, TPO Roofing System to EPDM Roof, EPDM Roofing System.**

Work Scope 7.11 – TPO Roof

KA SPECIAL REQUIREMENTS

4. Under 1.02, Part E. Winter conditions: Delete the words "heat equipment, fuel".
 - A. Add item 1: Snow and frost removal - if required, will be the responsibility of this work scope.
 - B. Add item 2: Any winter conditions costs to complete your work.
5. Under 1.02, Part O. Change Thermoplastic Membrane Roofing (TPO, PVC): Provide thermoplastic membrane roofing systems in accordance with Section 07543, ...to: "EPDM Roofing (EPDM, PVC): Provide EPDM membrane roofing systems in accordance with Section 07531,...".
6. Under 1.02, Part O. Delete Item 5. entirely.
7. Under 1.03., Part D, Item 5: Add: This includes all insulation and vapor barrier concealed by your work which cannot be accessed after this Bid Package work is complete.

Work Scope 8.10 – Curtain Wall

KA SPECIAL REQUIREMENTS

1.01 CURTAIN WALL

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
08800	Glazing	Complete
08911	Glazed Aluminum Curtain Walls	Complete
 2. Items specified in other Sections, but installed by this Work Scope

		As it applies
07210	Thermal insulation directly related to curtain wall assemblies	As it applies
07415	Composite metal panels directly related to curtain wall assemblies	As it applies
07620	Sheet metal flashing and trim directly related to curtain wall	As it applies
07920	Sealants directly related to curtain wall assemblies	As it applies

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
 1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 90 working days to complete their work.

Work Scope 8.10 – Curtain Wall

KA SPECIAL REQUIREMENTS

- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Glazed aluminum curtain wall assemblies:** Provide complete assemblies in accordance with Section 08911, including, but not limited to:
 - 1. Aluminum framing systems.
 - 2. Metal copings at top of curtain wall systems.
 - 3. Aluminum entrances directly within curtain wall framing.
 - 4. Metal closure panels behind other facing materials or and concealed above soffits.
 - 5. Curtain wall and thermal insulation directly related to curtainwall assembly.
 - 6. Primary and secondary weather seals and continuity of vapor barriers between curtain wall assemblies and adjacent wall construction.
- P. **Complete Assembly:** Provide fasteners, sealant, trim, flashing and counter flashings for a complete system, including but not limited to, flat metal panels, ribbed metal panels, louvers, counter flashing, and accessories.
 - 1. Provide flashings, counter flashing, sheet metal, and caulking necessary within your systems and adjacent to other dissimilar materials.
 - 2. Metal Panels: Provide metal panels occurring within curtain wall, storefront framing and window systems.
 - 3. Aluminum Profiles and Trim: Provide concealed and exposed trim.
 - 4. Thermal Insulation: Provide semi-rigid insulation, and spray foam insulation for a complete system.
 - 5. Sealants: Provide sealants and caulking necessary for sealing of the window system.
 - a. Include exterior cosmetic caulking at perimeter of window frames and to other dissimilar materials.
 - b. Interior cosmetic caulking to the gypsum board or window stools will be by others.
 - c. Include expansion material and insulation within, behind or immediately abutting to the window or framing.
 - d. End dams must be sealed before frame installation.
 - 6. Permanent aluminum doors and hardware to be part of a future Bid Package.
- Q. **System Engineering:** Provide complete design, supply and installation of required anchorage/support systems necessary for the complete installation of your work (including engineered calculations) above and beyond what is depicted on the drawings and specifications.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the Specifications for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
 - 2. Field verify alignment of edge-of-slabs and placement of embeds.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **Special Coordination at Exterior Envelope (Vapor Barriers / Thermal Enclosure):** Construction exterior enclosure to ensure continuous thermal insulation and vapor barrier as indicated or required.
 - 1. Includes insulation and vapor barrier within the window, curtain wall or entrance system.
- D. **Special mobilization requirements:** Completion of exterior enclosure may require numerous mobilizations. Coordinate with Kraus-Anderson.
- E. **Special Safety Requirements:** This Work Scope is responsible for the installation and maintenance of temporary handrails, guardrails, toe boards, cable rails, and supports for the same at perimeter of the structure, leading edges, stair handrails, and other openings required to be protected by OSHA regulations for your required work areas.
- F. **Protection of Adjacent Work:** This Subcontractor is responsible for protection of the roof and any adjacent surfaces during the prosecution of this work.
- F. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 ALLOWANCES

- A. **Field Water Testing:** Include **\$2,500 of allowance** for incidental materials and labor to assist Owner's testing agency to perform field testing as directed.

Work Scope 8.10 – Curtain Wall

KA SPECIAL REQUIREMENTS

1.05 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.06 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.
- B. **Requirements for “Delegated Design – Third Party Engineering - (shop drawing Engineering):**
 - 1. Qualification of Design Engineer:
 - 2. Certificate of Insurance for Professional Liability Insurance per Contract requirements.

-- End --

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 8.10 - Curtain Wall

- 1. Under 1.02, Part E. Winter conditions: Delete the words "heat equipment, fuel".
 - A. Add Item 1: Snow removal - if required, will be the responsibility of this work scope.
- 2. Under 1.02, Part O., Item 2., Replace entirely with: All temporary doors are to be provided and installed by the CM.
 - A. Items 3 thru 5 - Delete in their entirety.
- 3. Under 1.02, Part P., Items 2 thru 4 - Delete in their entirety.
- 4. Under 1.02, Part P., Item 6., Replace entirely with: Permanent Aluminum doors, immediate frames, and hardware to be part of a future Bid Package.
- 5. Under 1.04, Part A., Change the \$2,500 allowance to a \$5,000 allowance.

Work Scope 15.10 – Mechanical (Below Grade)

KA SPECIAL REQUIREMENTS

1.01 MECHANICAL (BELOW GRADE)

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
Division 15	Mechanical [all sections within Division 15]	Complete
07920	Joint Sealants	As it applies

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 90 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Plan Sheets:** Work Scope 15.10 per Plumbing and Mechanical Sheets P001, P100, P101, P102, P103, P401, P501, M001, M002, M108, M109 and M501.

Work Scope 15.10 – Mechanical (Below Grade)

KA SPECIAL REQUIREMENTS

- P. **Functional System:** Provide complete functional system consistent with the design intent of the specifications sections identified above and other project documents, including but not limited to:
 - 1. Items not shown but necessary to provide a properly functioning system shall be included in this Work Scope.
 - 2. Extension to outside of building to receive site utilities and final connection to utilities shall be included in this Work Scope.
 - 3. Required permits and inspections fees.
- Q. **Housekeeping and Equipment Pads:** Provide concrete housekeeping pads for your work.
- R. **Roof Curbs and Supports:** Provide roof curbs and supports required for your work, unless specifically indicated to be provided by another Work Scope.
- S. **Sleeve:** Layout, cutting openings, and setting sleeves and embeds required by this Work Scope.
- T. **Sealant around Pipe Penetrations:** Provide sealant in accordance with Section 07920 around piping penetrations, fixtures and accessories installed by this Work Scope.
- U. Air floor ducting and concrete topping in future Bid Package.
- V. All excavations and backfills as a result of this Work Scope will require compaction with Independent test results confirming proper compactions.
- W. Televising of all below grade ductwork will occur prior to slab-on-grade pour.
- X. All mechanical work to elevation 0.00.
- Y. Capping and proper termination of work as specified.
- Z. Drain tile work by Work Scope 2.10.
- AA. **Utility Work:**
 - 1. Private water main/domestic water supply - connect to valve at public/private interface as shown on Civil plans. Include all work.
 - 2. Fire suppression waterline - connect to valve at public/private interface as shown on Civil plans.
 - 3. Sanitary lateral - connect to sanitary MH #3 including all excavation work. See Civil plans.
 - 4. Gas line work - line to meter on building by others. Connection to meter by this Work Scope.
 - 5. Roof drains - including all canopy drain work to nearest drain structures.
 - 6. Drain tile - by Work Scope 2.10.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the Specifications for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **System Coordination:** Provide a qualified representative to coordinate other trades.
 - 1. Ensure interface between interrelated products are compatible with one another.
- D. **Utility Company Coordination:** Coordination with utility company to install required services and pay for costs associated with connections, unless specifically indicated otherwise.
- E. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.05 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.

Work Scope 15.10 – Mechanical (Below Grade) ***KA SPECIAL REQUIREMENTS***

-- End --

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 15.10 - Mechanical (Below Grade)

1. Under 1.02, Part E - WINTER CONDITIONS: Delete the words "heat equipment, fuel".
 - A. Add item 1: Snow and frost removal within the building slab on grade area will be the responsibility of the CM.
2. Under 1.02, Part U: Replace with: Air floor ducting and concrete toppings on 2nd and 3rd floors in a future Bid Package.

CLARIFICATION, 6/17/2010

Work Scope 15.10 MECHANICAL (BELOW GRADE):

- a) The Sump pumps and Elevator Pumps (Called out on the P501 Pump Schedule) - are NOT in this Bid Package.
- b) This work scope is to provide ONLY all trench drain systems - to be installed by Work scope 3.10
- c) Elevator sump pump PITS AND PUMPS - ARE NOT IN this Bid Package.

Work Scope 16.10 – Electrical (Below Grade) KA SPECIAL REQUIREMENTS

1.01 ELECTRICAL (BELOW GRADE)

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of this Work Scope package, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:

Part 1	Title	Complete
Part 2	Bid Information and Proposal Forms	Complete
Part 3	Mandatory Contract Provisions	Complete
Part 4	General Provisions	Complete
Part 5	Supplementary General Conditions	Complete
Part 6	Safety & Security	Complete
Part 7	Special Conditions	Complete
Part 10	Appendix	Complete
Part 11	Division 01 - General Requirements	Complete
Division 16	Electrical [all sections within Division 16]	Complete
07920	Joint Sealants	As it applies

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Specifications Part 1 - 7, 10 and 11 for additional requirements affecting this Work Scope.
- B. **Scope:** Furnish complete labor and materials (unless noted otherwise) for all work scope indicated on the contract documents, specifically the specification sections identified above. Include all necessary layout of lines and elevations, field measurements, equipment and tools, receiving / off-loading / storing of materials, freight and delivery charges, and sales and use taxes.
- C. **Work hours:** A typical workweek will be (5) 8-hour shifts from 7:00 AM to 3:30 PM, Monday through Friday (subject to change). However, all trade contractors are required to furnish the appropriate manpower count and work the required number of hours and days per week to fulfill the contract and schedule obligations.
- D. **Schedule:** The enclosed construction schedule prepared by the Construction Manager is a guideline of the approximate sequence of events that must occur to meet the targeted start and completion dates. Various milestone dates throughout the project will be fine-tuned with the assistance of the trade contractors and suppliers.
1. Also review Civil Phasing Plan Sheet 050 for additional information.
- E. **Winter conditions:** Include temporary enclosures, shelters, blankets, heat equipment, fuel or any other temporary heat provisions necessary to perform your specific work in accordance with the project schedule.
- F. **Coordination:** Coordinate all work with the Construction Manager and other trade contractors and suppliers that may interface with your work.
- G. **Submissions:** Provide timely submission of insurance certificates, schedule of values, shop drawings, product data, sample and mockups.
- H. **Compliance:** Comply with all Federal, State and Local building codes and regulations, include OSHA.
- I. **Cleanup:** Provide continuous and ongoing housekeeping and cleanup as required to maintain a clean and safe jobsite.
- J. **LEED Requirements:** Adhere to all LEED building requirements as defined in the Specifications.
- K. **Buy American Certification:** Contractors are required to adhere to all Buy American requirements in the Specifications.
- L. **Contract Duration:** This Work Scope will have 90 working days to complete their work.
- M. **Tug tunnel:** Work beyond building exterior wall side of Gridlines 1.3 and 11.7 in future Bid Package.
- N. **Canopy:** All below grade work within this Bid Package. Above grade work in future Bid Package.
- O. **Plan Sheets:** Work Scope 16.10 per Electrical Sheets E001, E100, E111, E200, E201, E400, E404, E405, E406, E407 and ET010.
- P. Air floor ducting and concrete topping in future Bid Package.

Work Scope 16.10 – Electrical (Below Grade) **KA SPECIAL REQUIREMENTS**

- Q. **Functional System:** Provide complete functional system consistent with the design intent of the specifications sections identified above and other project documents, including but not limited to:
 - 1. Items not shown but necessary to provide a properly functioning system shall be included in this Work Scope.
 - 2. Main power, power distribution, and lighting systems rough-in only per contract documents.
 - 3. Required permits and inspections fees.
- R. **Housekeeping and Equipment Pads:** Provide concrete housekeeping pads for your work.
 - 1. Including Power Company transformer pads.
- S. **Sleeve:** Layout, cutting openings, and setting sleeves and embeds required by this Work Scope.
- T. **Sealant around Electrical Components:** Provide sealant in accordance with Section 07920 around electrical conduits and comments penetrating exterior walls, sound rated partitions, smoke-tight or vapor-tight assemblies.
- U. **Utility Company Coordination:** Coordination with utility/electrical company to install required services and pay for costs associated with connections, unless specifically indicated otherwise.
- V. **Temporary Electrical Services by Construction Manager:** Refer to Section 01500 for additional requirement, plus the following:
 - 1. Connect and disconnect of electrical power to Kraus-Anderson Construction Company's jobsite office trailer.
 - 2. Furnish, install and remove temporary electrical power on each floor to be used by other multiple trades. This includes temporary elevator power if required.
 - 3. Furnish, install and remove temporary lighting throughout the building. Light shall be such that permits other trades to complete their work.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Parts 1 - 7, 10 and 11 of the Specifications for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **System Coordination:** Provide a qualified representative to coordinate other trades.
 - 1. Ensure interface between interrelated products are compatible with one another.
- D. **Composite Clean-up Crew:** Weekly composite clean up crew will be utilized on this project.
 - 1. This trade contractor will be required to participate in this effort.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Include necessary provisions as required.
- B. **Hoisting and Scaffolding:** Work Scope is the responsibility for your own working platforms, scaffolding, hoisting and equipment necessary to access and complete work.

1.05 SUBMITTAL REQUIREMENTS

- A. In accordance with individual specification section requiring Submittals and Division 01 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Contract Documents.

-- End --

COMPILATION SET

Addendum No. 1, 6/11/2010

Work Scope 16.10 Electrical (Below Grade)

- 1. Under 1.02, Part E - WINTER CONDITIONS: Delete the words "heat equipment, fuel".
 - A. Add item 1: Snow and frost removal within the building slab on grade area will be the responsibility of the CM.

**CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY**

GENERAL

In accordance with Executive Order 11246 (30 F.R. 12319-25), the implementing rules and regulations thereof, and orders of the Secretary of Labor, a Certification regarding Equal Opportunity is required of bidders or prospective contractors and their proposed subcontractors prior to the award of contracts or subcontracts.

CERTIFICATION OF BIDDER

Bidder's Name _____

Address _____

1. Participation in a previously Federally assisted contract or subcontract.
 - a. The Bidder (Proposer) shall complete the following statement by checking the appropriate boxes.
 - (1) The Bidder (Proposer) has () has not () participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 10925, or Executive Order 11114, or Executive Order 11246, as amended.
 - (2) The Bidder (Proposer) has () has not () submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained to award of subcontractors.
 - b. If the Bidder (Proposer) has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under applicable filing requirements, the Bidder (Proposer) shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-1" prior to the award of contract.
 - c. When a determination has been made to award the contract to a specific contractor, such contractor may be required, prior to award, or after the award, or both, to furnish such other pertinent information regarding its own employment practice and policies as well as of its proposed subcontractors as the FAA, the Sponsor, or the Director of OFCC may require. (41 CFR Chapter 60; FAR 152.6(c).)

CERTIFICATION OF NONSEGREGATED FACILITIES

The federally assisted construction contractor certifies that he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certifies that he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the equal opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work area, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the equal opportunity clause and that he will retain such certifications in his files.

REMARKS:

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer

(Please Type)

☐ Contractor

☐ Subcontractor

Signature

Date

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Airport Name: Duluth International Airport

Location: Duluth, MN

Sponsor: Duluth Airport Authority

FAA AIP Number: 3-27-24-48-10

AFFIDAVIT AND INFORMATION REQUIRED OF BIDDERS

Affidavit of Non-Collusion:

I hereby swear (or affirm) under penalty of perjury:

1. That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);
2. That the attached bid or bids have been arrived at by the bidder independently and have been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or materials, supplied, equipment or services described in the invitation to bid, designed to limit independent bidding or competition;
3. That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids; and
4. That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____

Firm Name: _____

Subscribed and sworn to me before this ____ day of _____, _____

NOTARY PUBLIC _____

My commission expires: _____

Bidder's E.I. Number _____

(Number used on employer's quarterly Federal Tax return)

Airport Name: Duluth International Airport

Location: Duluth, MN

Sponsor: Duluth Airport Authority

FAA AIP Number: 3-27-24-48-10

CERTIFICATION FOR CONTRACTS, GRANTS, LOANS AND COOPERATIVE AGREEMENTS

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal Contract, grant, loan or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee or any agency, a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobby Activities," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Contractor _____ Dated _____

Signed _____

Airport Name: Duluth International Airport

Location: Duluth, MN

Sponsor: Duluth Airport Authority

FAA AIP Number: 3-27-24-48-10

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND
VOLUNTARY EXCLUSION - 49 CFR PART 29
(VERSION 1, 1/5/90)**

The bidder/offerer certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offerer/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

Contractor _____ Dated _____

Signed _____

Airport Name: Duluth International Airport

Location: Duluth, MN

Sponsor: Duluth Airport Authority

FAA AIP Number: 3-27-24-48-10

RESTRICTIONS ON FEDERAL PUBLIC WORKS PROJECTS CERTIFICATION

The undersigned CONTRACTOR or SUBCONTRACTOR, hereby certifies that it:

- a. Is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR):
- b. has not knowingly entered into any contract or subcontract for this project with a CONTRACTOR that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.
- c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17 no contract shall be awarded to a CONTRACTOR or SUBCONTRACTOR who is unable to certify to the above. If the CONTRACTOR knowingly procures or subcontracts for the supply of any product or service of a foreign country on the said list for use on the project, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract at no cost to the Government.

Further, the CONTRACTOR agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The CONTRACTOR may rely upon the certification of a prospective SUBCONTRACTOR unless it has knowledge that the certification is erroneous.

The CONTRACTOR shall provide immediate written notice to the sponsor if the CONTRACTOR learns that its certification or that of a SUBCONTRACTOR was erroneous when submitted or has become erroneous by reason of changed circumstances. The SUBCONTRACTOR agrees to provide immediate written notice to the CONTRACTOR, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the CONTRACTOR or SUBCONTRACTOR knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a CONTRACTOR is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

Contractor _____ Dated _____

Signed _____

Airport Name: Duluth International Airport

Location: Duluth, MN

Sponsor: Duluth Airport Authority

FAA AIP Number: 3-27-24-48-10

DBE ATTACHMENT

Each bidder shall submit with the proposal a written assurance of its ability to meet the prescribed DBE goal of **4.95 %** in its bid or of its "good faith efforts" to meet that goal. Bids received that do not contain this assurance or have not given acceptable evidence of "good faith efforts" to meet the DBE goal may be considered nonresponsive and may be ineligible for award of the contract at the discretion of the DAA.

Exclusive agreements between DBEs and Bidder/Proposers are forbidden. Bidders will submit, in writing, the names of the DBEs included in the bid, a description of the work the DBEs will perform and the dollar value of each DBE subcontract.

<u>DBE Firm</u>	<u>Description of Work</u>	<u>Dollar Value</u>
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DAA DISADVANTAGED BUSINESS ENTERPRISE POLICY STATEMENT

The Duluth Airport Authority has established a Disadvantage Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. The Duluth Airport Authority has received Federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, the Duluth Airport Authority has signed an assurance that it will comply with 49 CFR part 26.

It is the policy of the Duluth Airport Authority to ensure that DBEs, as defined in part 26, have an equal opportunity to receive and participate in DOT assisted contracts. It is also our policy to ensure nondiscrimination in the award and administration of DOT assisted contracts; to create a level playing field on which DBEs can compete fairly for DOT assisted contracts; to ensure that the DBE program is narrowly tailored in accordance with applicable law; to ensure that only firms that fully meet 49 CFR part 26 eligibility standards are permitted to participate as DBEs; to help remove barriers to the participation of DBEs in DOT assisted contracts; and to assist the development of firms that can compete successfully in the market place outside the DBE Program.

The Director of Operations has been delegated as the DBE Liaison Officer. In that capacity, the Director of Operations is responsible for implementing all aspects of the DBE program. Implementation of the DBE program is accorded the same priority as compliance with all other legal obligations incurred by the Duluth Airport Authority in its financial assistance agreements with the Department of Transportation.



Brian Grefe
DBE Liaison Officer
Duluth Airport Authority
4701 Grinden Drive
Duluth, MN 55811
(218) 727-2968
bgrefe@duluthairport.com

**DEPARTMENT OF TRANSPORTATION
DBE PROGRAM – 49 CFR PART 26
DULUTH AIRPORT AUTHORITY**

POLICY STATEMENT

Section 26.1, 26.23**Objectives/Policy Statement**

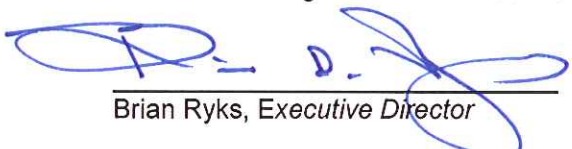
The Duluth Airport Authority has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. The Duluth Airport Authority has received Federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, the Duluth Airport Authority has signed an assurance that it will comply with 49 CFR Part 26.

It is the policy of the Duluth Airport Authority to ensure that DBEs are defined in part 26, have an equal opportunity to receive and participate in DOT-assisted contracts. It is also our policy:

1. To ensure nondiscrimination in the award and administration of DOT – assisted contracts;
2. To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
3. To ensure that the DBE Program is narrowly tailored in accordance with applicable law;
4. To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are permitted to participate as DBEs;
5. To help remove barriers to the participation of DBEs in DOT assisted contracts;
6. To assist the development of firms that can compete successfully in the market place outside the DBE Program.

The Director of Operations has been delegated as the DBE Liaison Officer. In that capacity, *the Director of Operations* is responsible for implementing all aspects of the DBE program. Implementation of the DBE program is accorded the same priority as compliance with all other legal obligations incurred by the Duluth Airport Authority in its financial assistance agreements with the Department of Transportation.

The Duluth Airport Authority has disseminated this policy statement to the Board of Directors and all of the components of our organization. We have distributed this statement to DBE and non-DBE business communities that perform work for us on DOT-assisted contracts by including this statement in our bid documents along with our advertisements in minority and majority publications.



Brian Ryks, Executive Director

Date

SUBPART A – GENERAL REQUIREMENTS

Section 26.1 Objectives

The objectives are found in the policy statement on the first page of this program.

Section 26.3 Applicability

The Duluth Airport Authority is the recipient of federal airport funds authorized by 49 U.S.C. 47101, *et seq.*

Section 26.5 Definitions

The Duluth Airport Authority will adopt the definitions contained in Section 26.5 for this program.

Section 26.7 Non-discrimination Requirements

The Duluth Airport Authority will never exclude any person from participation in, deny any person the benefits of, or otherwise discriminate against anyone in connection with the award and performance of any contract covered by 49 CFR part 26 on the basis of race, color, sex, or national origin.

In administering its DBE program, the Duluth Airport Authority will not, directly or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the objectives of the DBE program with respect to individuals of a particular race, color, sex, or national origin.

Section 26.11 Record Keeping Requirements

Reporting to DOT: 26.11(b)

The Duluth Airport Authority will report DBE participation to DOT as follows:

We will submit annually DOT Form 4630, as modified for use by FAA recipients.

Bidders List: 26.11(c)

The Duluth Airport Authority will create a bidders list, consisting of information about all DBE and non-DBE firms that bid or quote on DOT-assisted contracts. The purpose of this requirement is to allow use of the bidder's list approach to calculating overall goals. The bidder list will include the name, address, DBE / non-DBE status, age, and annual gross receipts of firms.

The Duluth Airport Authority will collect this information by obtaining the Minnesota DOT Certified DBE Directory, utilizing past record information maintained by the City of Duluth Purchasing Department and obtaining information provided by firms quoting on projects.

Section 26.13 Federal Financial Assistance Agreement

The Duluth Airport Authority has signed the following assurances, applicable to all DOT-assisted contracts and their administration:

Assurance: 26.13(a)

Duluth Airport Authority shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT assisted contract or in the administration of its DBE Program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT assisted contracts. The recipient's DBE Program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the Duluth Airport Authority of its failure to carry out its approved program, the Department may impose sanction as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 *et seq.*).

This language will appear in financial assistance agreements with sub-recipients.

Contract Assurance: 26.13b

The Duluth Airport Authority will ensure that the following clause is placed in every DOT-assisted contract and subcontract:

The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate.

SUBPART B - ADMINISTRATIVE REQUIREMENTS

Section 26.21 DBE Program Updates

Since the Duluth Airport Authority has received a grant of \$250,000 or more for airport planning or development, we will continue to carry out this program until all funds from DOT financial assistance have been expended. We will provide to DOT updates representing significant changes in the program.

Section 26.23 Policy Statement

The Policy Statement is elaborated on the first page of this program.

Section 26.25 DBE Liaison Officer (DBELO)

We have designated the following individual as our DBE Liaison Officer:

Brian Grefe, Director of Operations
Duluth Airport Authority
4701 Grinden Drive
(218) 727-2968
e-mail: bgrefe@duluthairport.com

In that capacity, the DBELO is responsible for implementing all aspects of the DBE program and ensuring that the Duluth Airport Authority complies with all provision of 49 CFR Part 26. The DBELO has direct, independent access to the *Executive Director Brian Ryks* concerning DBE program matters. An organization chart displaying the DBELO's position in the organization is found in *Attachment 1* to this program.

The DBELO is responsible for developing, implementing and monitoring the DBE program, in coordination with other appropriate officials. The DBELO will administer the program and has access to additional staff and legal council if needed to assist in the administration of the program. The duties and responsibilities include the following:

1. Gathers and reports statistical data and other information as required by DOT.
2. Reviews third party contracts and purchase requisitions for compliance with this program.
3. Works with all departments to set overall annual goals.
4. Ensures that bid notices and requests for proposals are available to DBEs in a timely manner.
5. Identifies contracts and procurements so that DBE goals are included in solicitations (both race-neutral methods and contract specific goals attainment and identifies ways to improve progress.
6. Analyzes Duluth Airport Authority's progress toward attainment and identifies ways to improve progress.
7. Participates in pre-bid meetings.
8. Advises the *Executive Director* on DBE matters and achievement.
9. Chairs the DBE Advisory Committee.
10. Participates in pre-bid meetings.
11. Provides DBEs with information and assistance in preparing bids, obtaining bonding and insurance.
12. Plans and participates in DBE training seminars.
13. Certifies DBEs according to the criteria set by DOT and acts as liaison to the Uniform Certification Process in Minnesota.
14. Provides outreach to DBEs and community organizations to advise them of opportunities.
15. Maintains the Duluth Airport Authority's updated directory on certified DBEs.

Section 26.27 DBE Financial Institutions

It is the policy of the Duluth Airport Authority to investigate the full extent of services offered by financial institutions owned and controlled by socially and economically disadvantaged individuals in the community, to make reasonable efforts to use these institutions, and to encourage prime contractors on DOT-assisted contract to make use of these institutions. The *Finance Director* of the Duluth Airport Authority has reviewed the list of lending institutions in our area of Minnesota and determined that no institutions exist that are owned or controlled by socially or economically disadvantaged individuals.

Section 26.29 Prompt Payment Mechanisms

The Duluth Airport Authority will include the following clause in each DOT-assisted prime contract:

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 10 days from the receipt of each payment the prime contract receives from Duluth Airport Authority. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractors work is satisfactorily completed.

Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Duluth Airport Authority. This clause applies to both DBE and non-DBE subcontracts.

Section 26.31 Directory

The Duluth Airport Authority maintains a directory identifying all firms eligible to participate as DBEs. The directory lists the firm's name, address, phone number, date of the most recent certification, and the type of work the firm has been certified to perform as a DBE. We revise the Directory annually. We make the Directory available as follows: *Duluth Airport Authority, 4701 Grinden Drive, Duluth, MN 55811; (218) 727-2968; e-mail: daa@duluthairport.com* The Directory may be found in *Attachment 2* to this program document.

Section 26.33 Overconcentration

Duluth Airport Authority has not identified that overconcentration exists in the types of work that DBEs perform.

Section 26.35 Business Development Programs

Duluth Airport Authority has not established a business development program.

Section 26.37 Monitoring and Enforcement Mechanisms

The Duluth Airport Authority will take the following monitoring and enforcement mechanisms to ensure compliance with 49 CFR Part 26.

1. We will bring to the attention of the Department of Transportation any false, fraudulent, or dishonest conduct in connection with the program, so that DOT can take the steps (e.g., referral to the Department of Justice for criminal prosecution, referral to the DOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules) provided in 26.109.
2. We will consider similar action under our own legal authorities, including responsibility determinations in future contracts. *Attachment 3* lists the regulation, provisions, and contract remedies available to us in the events of non-compliance with the DBE regulation by a participant in our procurement activities.
3. We will also provide a monitoring and enforcement mechanism to verify that work committed to DBEs at contract award is actually performed by the DBEs. This will be accomplished by verifying payroll reports and verifying work performed.
4. We will keep a running tally of actual payments to DBE firms for work committed to them at the time of contract award.

SUBPART C – GOALS, GOOD FAITH EFFORTS, AND COUNTING

Section 26.43 Set-asides or Quotas

The Duluth Airport Authority does not use quotas in any way in the administration of this DBE program.

Section 26.45 Overall Goals

A description of the methodology to calculate the overall goal and the goal calculations can be found in *Attachment 4* to this program. This section of the program will be updated annually.

In accordance with Section 26.45(f) the Duluth Airport Authority will submit its overall goal to DOT on August 1 of each year. Before establishing the overall goal each year, Duluth Airport Authority will consult with the *compliance officer for the City of Duluth, along with the Builders Exchange officials of Northern Minnesota, Minnesota Small Business Development Cooperation, Minnesota Department of transportation, and the Local Office of Economic Security* to obtain information concerning the availability of disadvantaged and non-disadvantaged businesses, the effects of discrimination on opportunities for DBEs, and the Duluth Airport Authority's efforts to establish a level playing field for the participation of DBEs.

Following this consultation, we will publish a notice of the proposed overall goals, informing the public that the proposed goal and its rationale are available for inspection during normal business hours at your principal office for 30 days following the date of the notice, and informing the public that you and DOT will accept comments on the goals for 45 days from the date of the notice. This notice will be published in both local general circulation newspapers and a local minority publication. Normally, we will issue this notice by June 1 of each year. The notice must include addresses to which comments may be sent and addresses (including offices and websites) where the proposal may be reviewed.

Our overall goal submission to DOT will include a summary of information and comments received during this public participation process and our responses.

We will begin using our overall goal on October 1 of each year, unless we have received other instructions from DOT. If we establish a goal on a project basis, we will begin using our goal by the time of the first solicitation for a DOT-assisted contract for the project.

Section 26.51(a-c) Breakout of Estimated Race-Neutral & Race-Conscious Participation

The breakout of estimated race-neutral and race-conscious participation can be found in [Attachment 5](#) to this program. This section of the program will be updated annually when the goal calculation is updated.

Section 26.51(d-g) Contract Goals

The Duluth Airport Authority will use contract goals to meet any portion of the overall goal Duluth Airport Authority does not project being able to meet using race-neutral means. Contract goals are established so that, over the period to which the overall goal applies, they will cumulatively result in meeting any portion of our overall goal that is not projected to be met through the use of race-neutral means.

We will establish contract goals only on those DOT-assisted contracts that have subcontracting possibilities. We need not establish a contract goal on every such contract, and the size of contract goals will be adapted to the circumstances of each such contract (e.g., type and location of work, availability of DBEs to perform the particular type of work.)

We will express our contract goals as a percentage of the Federal share of a DOT-assisted contract.

Section 26.53 Good Faith Efforts Procedures**Demonstration of good faith efforts (26.53(a) & (c))**

The obligation of the bidder/offeror is to make good faith efforts. The bidder/offeror can demonstrate that it has done so either by meeting the contract goal or documenting good faith efforts. Examples of good faith efforts are found in Attachment 5

The following personnel are responsible for determining whether a bidder/offeror who has not met the contract goal has documented sufficient good faith efforts regarded as a responsive approach.

DBELO
City Attorney

We will ensure that all information is complete and accurate and adequately documents the bidder/offer's good faith efforts before we commit to the performance of the contract by the bidder/offeror.

Information to be submitted (26.53(b))

Duluth Airport Authority treats bidder/offers' compliance with good faith efforts' requirements as a matter of responsiveness.

Each solicitation for which a contract goal has been established will require the bidders/offerors to submit the following information:

1. The names and addresses of DBE firms that will participate in the contract;
2. A description of the work that each DBE will perform;
3. The dollar amount of the participation of each DBE firm participating;
4. Written and signed documentation of commitment to use a DBE subcontractor whose participation it submits to meet a contract goal;
5. Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractors commitment and
6. If the contract goal is not met, evidence of good faith efforts.

Administrative reconsideration (26.53(d))

Within 10 days of being informed by Duluth Airport Authority that it is not responsive because it has not documented sufficient good faith efforts, a bidder/offeror may request administrative reconsideration. Bidder/offerors should make this request in writing to the following reconsideration official: *Mary Prescott-Acting Director, Office of EEO Contract Management, 395 John Ireland Boulevard, St. Paul, MN 55155 (651) 366-3150.*

As part of this reconsideration, the bidder/offeror will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The bidder/offeror will have the opportunity to meet in person with our reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do. We will send the bidder/offeror a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The result of the reconsideration process is not administratively appealable to the Department of Transportation.

Good Faith Efforts when a DBE is replaced on a contract (26.53(f))

Duluth Airport Authority will require a contractor to make good faith efforts to replace a DBE that is terminated or has otherwise failed to complete its work on a contract with another certified DBE, to the extent needed to meet the contract goal. We will require the prime contractor to notify the DBE Liaison

officer immediately of the DBE's inability or unwillingness to perform and provide reasonable documentation.

In this situation, we will require the prime contractor to obtain our prior approval of the substitute DBE and to provide copies of new or amended subcontracts, or documentation of good faith efforts. If the contractor fails or refuses to comply in the time specified, our contracting office will issue an order stopping all or part of payment/work until satisfactory action has been taken. If the contractor still fails to comply, the contracting officer may issue a termination for default proceeding.

Sample Bid Specification:

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the Duluth Airport Authority to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders/offerors, including those who qualify as a DBE. A DBE contract goal of 2.1% percent has been established for this contract. The bidder/offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26 (Attachment 1), to meet the contract goal for DBE participation in the performance of this contract.

The bidder/offeror will be required to submit the following information: (1) the names and addresses of DBE firms that will participate in the contract; (2) a description of the work that each DBE firm will perform; (3) the dollar amount of the participation of each DBE firm participating; (4) Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal; (5) Written confirmation from the DBE that it is participating in the contract as provided in the commitment made under (4); and (5) if the contract goal is not met, evidence of good faith efforts.

Section 26.55 Counting DBE Participation

We will count DBE participation toward overall and contract goals as provided in 49 CFR 26.55.

SUBPART D – CERTIFICATION STANDARDS

Section 26.61 – 26.73 Certification Process

Duluth Airport Authority will use the certification standards of Subpart D of Part 26 to determine the eligibility of firms to participate as DBEs in DOT-assisted contracts. To be certified as a DBE, a firm must meet all certification eligibility standards. We will use the Minnesota Unified Certification Program (Mn/UCP) to certify firms under Part 26 requirements.

For information about the certification process or to apply for certification, firms should contact:

*Minnesota Department of Transportation
Office of EEO Contract Management
395 John Ireland Boulevard
St. Paul, MN 55155-1899
(651) 366-3073*

SUBPART E – CERTIFICATION PROCEDURES

Section 26.81 Unified Certification Programs

Duluth Airport Authority is the member of a Unified Certification Program (UCP) administered by *Minnesota Department of Transportation*. The UCP will meet all of the requirements of this section. The following is a description of the UCP:

The Minnesota Uniform Certification Program (Mn/UCP) has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. Agencies that comprise the Mn/UCP have received Federal financial assistance from DOT and, as a condition of receiving this assistance, have signed an assurance that they will comply with 49 CFR Part 26. The Mn/UCP was submitted March 2002 and was approved.

Section 26.83 Procedures for Certification Decisions

Re-certifications 26.83(a) & (c)

We will for recertifications use the Mn/UCP certification process that has been updated to Part 26 requirements.

"No Change" Affidavits and Notices of Change (26.83(i))

We require all DBEs to inform us, in a written affidavit, of any change in its circumstances affecting its ability to meet size, disadvantaged status, ownership or control criteria of 49 CFR Part 26 or of any material changes in the information provided with DBE's application for certification.

We will use the Mn/UCP certification process that meets the Part 26 requirements.

Section 26.85 Denials of Initial Requests for Certification

We will use the Mn/UCP process for this requirement that meets the Part 26 requirements.

Section 26.87 Removal of a DBE's Eligibility

We will use the Mn/UCP process for this requirement that meets the Part 26 requirements.

Section 26.89 Certification Appeals

Any firm or complainant may appeal our decision in a certification matter to DOT. Such appeals may be sent to:

Department of Transportation
Office of Civil Rights Certification Appeals Branch
400 7th Street, SW
Room 2104
Washington, D.C. 20590

We will promptly implement any DOT certification appeal decisions affecting the eligibility of DBEs for our DOT-assisted contracting (e.g., certify a firm if DOT has determined that our denial of its application was erroneous).

SUBPART F – COMPLIANCE AND ENFORCEMENT

Section 26.109 Information, Confidentiality, Cooperation

We will safeguard from disclosure to third parties information that may reasonably be regarded as confidential business information, consistent with Federal, state, and local law. Notwithstanding any contrary provisions of state or local law, we will not release personal financial information submitted in response to the personal net worth requirement to a third party (other than DOT) without the written consent of the submitter.

Monitoring Payments to DBEs

We will require prime contractors to maintain records and documents of payments to DBEs for three years following the performance of the contract. These records will be made available for inspection upon request by any authorized representative of the Duluth Airport Authority, MnDOT or DOT. This reporting requirement also extends to any certified DBE subcontractor.

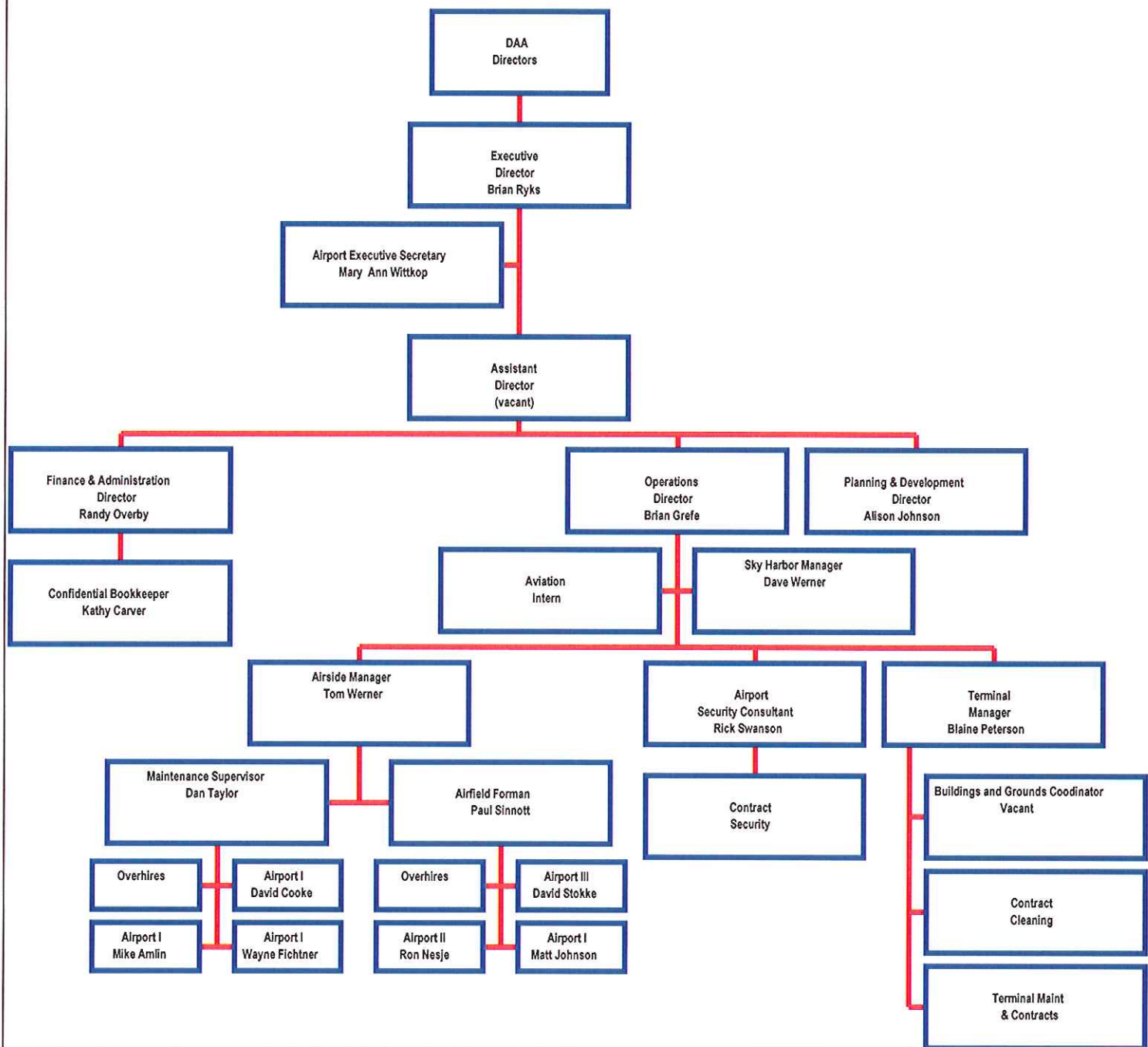
We will perform interim audits of contract payments to DBEs. The audit will review payments to DBE subcontractors to ensure that the actual amount paid to DBE subcontractors equals or exceeds the dollar amounts states in the schedule of DBE participation.

ATTACHMENTS

Attachment 1	Organizational Chart
Attachment 2	DBE Directory
Attachment 3	Monitoring and Enforcement Mechanisms
Attachment 4	Overall Goal Calculations
Attachment 5	Breakout of Estimated Race-Neutral & Race-Conscious Participation
Attachment 6	Form 1 & 2 for Demonstration of Good Faith Efforts

Attachment 1
Organizational Chart

**DULUTH AIRPORT AUTHORITY
ORGANIZATION CHART
February 22, 2008**



Attachment 2

DBE Directory

The Duluth Airport Authority utilizes the Minnesota Department of Transportation's Certified DBE Directory. This directory is maintained by the Mn DOT Office of EEO Contract Management and can be viewed or downloaded by visiting:

<http://www.dot.state.mn.us/eeocm/ucpdirectory.html>

Attachment 3

Monitoring and Enforcement Mechanisms

The Airport Authority has available several remedies to enforce the DBE requirements contained in its contracts, including, but not limited to, the following:

1. Breach of contract action, pursuant to the terms of the contract;
2. Breach of contract action, pursuant to State Codes and / or Local Laws.

In addition, the federal government has available several enforcement mechanisms that it may apply to firms participating in the DBE problem, including, but not limited to, the following:

1. Suspension or debarment proceedings pursuant to 49 CFR part 26
2. Enforcement action pursuant to 49 CFR part 31
3. Prosecution pursuant to 18 USC 1001.

Attachment 4**Section 26.45: Overall Goal Calculation****Amount of Goal**

The Duluth Airport Authority's overall goal for FY 2010-2011 is the following: 3.8% of the Federal Financial assistance we will expend in DOT-assisted contracts.

1. Snowmelter
2. Terminal Construction Phase 2

Although some of these projects are not guaranteed to occur in FY 2010-2011 depending on the availability of discretionary funding, DBE goals were set and factored into the overall DBE goal for FY 2010-2011.

Given the amount of DOT-assisted contracts the Authority could expect to let during this fiscal year, which is approximately \$42,906,845 (federal share only), the Duluth Airport Authority has set a goal of expending \$1,630,460 with DBEs during the fiscal year.

Methodology used to Calculate Overall Goal**Step 1: 26.45(c)**

The following is a summary of the method the Duluth Airport Authority utilized to calculate this year's goal.

Determine the base figure for the relative availability of DBEs. The base figure for the relative availability of DBE's was calculated as follows:

$$\text{Base figure} = \frac{\text{Ready, willing and able DBEs}}{\text{All firms ready, willing and able}}$$

The data source or demonstrable evidence used to derive the numerator was: Minnesota Certified DBE Directory <http://www.dot.state.mn.us/bidlet/misfiles/pdf/dbedirec.pdf>, and any known DBE contractor information and the United States Census Bureau Information <http://www.census.gov/epcd/cbp/view/cbpview.html>

The data source or demonstrable evidence used to derive the denominator was: Northern Minnesota Builder's Exchange Directory and the yellow pages of the telephone books from the area, the number of firms with these NAICS codes was determined 379.

The Duluth Airport Authority decided to weight the projects by utilizing an engineer's estimate to more accurately depict the DBE goal. Based on the engineer's estimate, the following three pages summarize the DBE goal calculation for each project

**DULUTH INTERNATIONAL AIRPORT
SNOW MELTER**

FY 2010 DBE GOAL

This project is expected to utilize \$1,335,000 in AIP funds for the Improvements

Weighted value based on Engineer's Estimate

	% of Project	**DBE *RWA	Non- DBE RWA	Anticipated DBE Participation
Snow Melter	82.5%	0	1	0.00%
Electrical	1.7%	9	74	0.21%
Storm Sewer	6.2%	3	13	1.43%
Gas Utility	2.7%	0	7	0.00%
Pavement Demolition	1.7%	10	6	2.86%
Pavement Repair	5.2%	12	74	0.84%
Total	100%	34	175	5.34%

Total Project Cost	\$ 1,455,000.00
Anticipated DBE Participation	5.34%
***DBE Adjustment Factor	0.50
DBE Project Goal	2.7%

*RWA = Ready Willing and Able

**DBE= Disadvantaged Business Enterprise

***DBE Adjustment Factor = Factor based on the following

Previous Years Participation
Current Bidding Climate
Project
Schedule
Project Size

Duluth International New Passenger Terminal Building							
NAICS Codes and Values for DBE Goals							
NAICS Code	Definition	-	Value	%	DBE RWA	Non-DBE	Anticipated DBE Participation
562910	Remediation Services			0.2%			0.02%
	1. Abestos Abatement		\$ 100,000.00		1	12	
238910	Site Preparation Contractors			8.7%	6	23	2.28%
	1. Demolition/Site Removals		\$ 990,100.00				
	2. Earthwork		\$ 2,635,477.00				
237110	Water and Sewer Line and Related Structures Construction			1.4%	3	14	0.29%
	1. Utilities		\$ 564,156.00				
237310	Highway, Street, Bridge Construction			12.8%	5	27	2.37%
	1. Asphalt Paving		\$ 496,656.00				
	2. Concrete Paving		\$ 4,730,000.00				
	3. Site Concrete		\$ 95,880.00				
561730	Landscape Services			0.3%	5	15	0.10%
	1. Landscaping		\$ 130,620.00				
238990	Other Specialty Trade Contractors			1.4%	0	4	0.00%
	1. Chain Link Fencing		\$ 106,362.00				
	2. Exterior Specialties		\$ 177,670.00				
	3. Signage/Awnings		\$ 310,000.00				
238110	Poured Concrete Foundation and Structure Contractors			6.4%	10	19	3.36%
	1. Concrete		\$ 2,650,600.00				
238120	Structural Steel and Precast			6.6%	2	8	1.66%

		<u>Contractors</u>					
		1. Structural Steel Fabrication	\$ 1,955,000.00				
		2. Structural Steel Erection	\$ 806,120.00				
238130		<u>Framing Contractors</u>		0.3%	3	21	0.05%
		2. Rough Carpentry	\$ 136,500.00				
238140		<u>Masonry Contractors</u>		0.9%	1	18	0.05%
		1. Masonry	\$ 354,500.00				
238150		<u>Glass and Glazing Contractors</u>		5.5%	1	7	0.79%
		1. Curtainwall	\$ 2,087,100.00				
		2. Glass/Glazing	\$ 214,225.00				
238160		<u>Roofing Contractors</u>		3.3%	9	11	2.68%
		1. Roofing	\$ 611,400.00				
		2. Sheetmetal	\$ 750,000.00				
238170		<u>Siding Contractors</u>		0.9%	5	6	0.78%
		1. Composite Panels	\$ 387,500.00				
238190		<u>Other Foundation, Structure, and Building Exterior Contractors</u>		0.7%	0	2	0.00%
		1. Miscellaneous Metals	\$ 307,560.00				
238210		<u>Electrical Contractors and Other Wiring Installation Contractors</u>		9.8%	9	34	2.58%
		1. Electrical	\$ 3,935,000.00				
Sub517		2. Telecommunications	\$ 119,780.00				
238220		<u>Plumbing, Heating, Air Conditioning Contractors</u>		12.4%	4	27	1.83%
		1. Plumbing and HVAC	\$ 4,611,500.00				
		2. Fire Protection	\$ 525,000.00				

238290		<u>Other Building Equipment Contractors</u>		12.9%	0	3	0.00%
		1. Conveying Systems	\$ 5,235,000.00				
		2. Automatic Door Systems	\$ 140,000.00				
238310		<u>Drywall and Insulation Contractors</u>		2.5%	1	16	0.16%
		1. Drywall	\$ 1,020,880.00				
		2. Acoustical Ceilings	\$ 26,000.00				
238320		<u>Painting and Wallcovering</u>		0.6%	6	23	0.16%
		1. Painting	\$ 252,650.00				
238330		<u>Flooring Contractors</u>		0.3%	1	18	0.01%
		1. Carpet	\$ 106,000.00				
238340		<u>Tile and Terrazzo Contractors</u>		3.9%	1	7	0.56%
		1. Terrazzo Flooring	\$ 1,482,500.00				
		2. Ceramic Tile	\$ 156,720.00				
337110		<u>Wood Kitchen Cabinet and Countertop Manufacturing</u>		0.3%	0	2	0.00%
		1. Architectural Millwork	\$ 143,300.00				
238350		<u>Finish Carpentry Contractors</u>		0.2%	6	25	0.04%
		1. Finish Carpentry	\$ 75,000.00				
332321		<u>Metal Window and Door Manufacturing</u>		1.0%	0	8	0.00%
		1. Doors and Hardware	\$ 288,760.00				
		2. Specialty Doors	\$ 116,390.00				
238390		<u>Other Building Finishing Contractors</u>		5.9%	0	4	0.00%
		1. Metal Ceilings	\$ 1,398,064.00				
		2. Caulking	\$ 40,000.00				
		3. Waterproofing	\$ 208,000.00				

		4. Furniture Installation	\$ 600,000.00				
		5. Moveable Partitions	\$ 78,840.00				
		6. Accessories	\$ 119,160.00				
541380		Testing Laboratories		0.6%	0	1	0.00%
		1. Testing Services	\$ 234,375.00				
541370		Land Surveying Services		0.1%	5	18	0.04%
		1. Surveying	\$ 61,500.00				
		Total Project Cost:	\$ 41,571,845	100.0%	84.00	373.00	19.81%
		TOTAL PROJECT COST	\$ 41,571,845				
		ANTICIPATED DBE PARTICIPATION	19.81%				
		*** DBE Adjustment Factor	0.25				
		DBE Project Goal	4.95%				
*RWA = Ready Willing and Able							
**DBE= Disadvantaged Business Enterprise							
***DBE Adjustment Factor = Factor based on the following							
		Previous Years Participation					
		Current Bidding Climate					
		Project Schedule					
		Project Size					

Step 2: 26.45(d)

The Duluth Airport Authority past goal history was reviewed. The following projects are listed for reference.

1. AIP 93-2-3-27-0024-18 T/W B Phase 1 Paving and Lighting	6.6%
2. AIP 94-2-3-27-0024-22 T/W B Phase 2 Grading and Paving	12.3%
3. AIP 96-1-3-27-0024-23 R/W 3-21 Pavement Rehab	2.1%
4. AIP 99-1-3-27-0024-28-99 Install R/W Centerline / Touchdown Zone Lighting; Rehab R/W 9 Concrete	5.1%
5. AIP 00-1-3-27-0024-29-00 Install R/W 9 ALSF2 Lighting; Rehab Passenger Terminal Ramp	11.7%
6. AIP 3 27-0024-30-01 Construct R/W Safety Area; Security Fencing	0.6%
7. AIP 3-27-0024-36-04 Construct R/W 9/27 Shoulders and Lighting East	1.7%
8. AIP 3-27-0024-37-05 Construct Perimeter Road Phase 1 and ARFF Phase	1.94%
9. AIP 3-27-0024-37-04 Construct an Aircraft Rescue and Firefighting Facility; Perimeter Road; Install Fence; Wildlife Assessment; Runway Sweeper; Loading Bridge	1.93%
10. AIP 3-27-0024-39-05 Rehab Runway 9/27; Rehab West end Runway 9/27 shoulders & Taxiway Shoulders within Runway Safety Area; Improve West End Drainage, Replace West End Runway 9/27 HIRLS; Rehabilitate West End Taxiway Lights, Replace West End Airfield Signs	18.3%
11. AIP 3-27-0024-41-06 Phase III Rwy 9/27 Center Shld, Lighting, Drainage, PCI, SPCC, 3/21 Pavement Rehab, Boiler	5.8%
12. AIP 3-27-0024-43-07 TSA Terminal Baggage Area	2.8%
13. AIP 3-27-0024-43-07 Passenger Bridge Design	2.3%
14. AIP 3-27-0024-44-08 GA Taxiway & Apron, GA Taxiway to Future Hangers, GA Access Road to GA Arrivals Building, Replace Beacon, Purchase MN Power Hanger & Monaco T-Hangers.	1.2%

TOTAL: 60.47% AVERAGE: 6.0%

These past projects utilized the same SIC codes to compare past DBE participation with this year's goals. Because our base goal of 3.8% is close to past DBE participation with a similar project (Construct R/W 9-27 Shoulders and Lighting East 1.7%), the DAA will maintain this figure.

Public Participation

We published our goal information in these publications: Duluth News Tribune, Duluth, MN

Copies of the newspaper advertisements and any public comments received will be forwarded for review and included in this Attachment 4.

LEGAL ADVERTISING**NOTICE OF 2010-2011
DBE CONSTRUCTION GOAL**

THE DULUTH AIRPORT AUTHORITY HAS SET A DISADVANTAGED BUSINESS ENTERPRISE GOAL OF 3.8% FOR THE FY 2010-2011 FEDERALLY FUNDED PROJECTS. THE FEDERALLY FUNDED PROJECTS INCLUDE AN IN PAVEMENT SNOW MELTER AND PHASE 2 OF THE NEW DULUTH INTERNATIONAL TERMINAL, AND PREPERATION OF THE NORTH BUSINESS DEVELOPMENT AREA. THE GOALS AND RATIONALE ARE AVAILABLE FOR INSPECTION AND COMMENT DURING NORMAL BUSINESS HOURS AT THE AIRPORT ADMINISTRATION OFFICE, 4701 GRINDEN DRIVE, DULUTH, MN 55811 UNTIL MAY 20, 2010. THE DULUTH AIRPORT WILL ACCEPT COMMENTS ON THE CONSTRUCTION GOAL UNTIL MAY 31, 2010 AT THE ABOVE ADDRESS OR EMAIL: daa@duluthairport.com

Attachment 5**Section 26.51: Breakout of Estimated
Race-Neutral & Race Conscious Participation**

Duluth Airport Authority will meet the maximum feasible portion of its overall goal by using race-neutral means of facilitating DBE participation. The Duluth Airport Authority uses the following race-neutral means to increase DBE participation: (1) Solicitation dates are scheduled to give potential participants ample time to direct questions and respond to bid requests. Bid advertisements are published in minority and non-minority publications to insure that potential participants are aware of the project. (2) While bonding is required of prime contractors to meet federal requirement the DAA does not impose these requirements on subcontractors and material suppliers. (3) Pre-bid conferences are held to explain the DBE program and make prime contractors aware of potential sources. (4) We will participate in local presentations or programs to explain contracting opportunities when such opportunities are available. (5) Copies of all plan holders are made available to all contractors in accordance with our standard copy policy.

We estimate that, in meeting our overall goal of 3.5%, we will obtain 0 to 1% from race-neutral participation and the majority (3.5%) through race-conscious measures (contract goals). An analysis (see next page – "DBE Participation Summary") was done of the overall goal accomplishments during the last few years to determine the airport's ability to achieve DBE participation on DOT assisted projects.

This analysis showed that less than 1% of our DBE accomplishments were beyond those required by contract goals. Because of the size of our organization, it is not feasible to devote extensive additional staffing or other resources to concentrate solely on the use of race-neutral means beyond what we have mentioned in this program. Should we become successful in obtaining higher than anticipated DBE participation, we will adjust the estimated breakout of race-neutral and race-conscious participation as needed to reflect actual DBE participation (see 26.51(0) and we will track and report race-neutral and race conscious participation separately. For reporting purposes, race-neutral DBE participation includes, but is not necessarily limited to, the following: DBE participation through a prime contract a DBE obtains through customary competitive procurement procedures; DBE participation through a subcontract on a prime contract that does not carry a DBE goal; DBE participation on a prime contract exceeding a contract goal; and DBE participation through a subcontract from a prime contractor that did not consider a firm's DBE status in making the award.

Attachment 6

1. Forms 1 & 2 for Demonstration of Good Faith Efforts

**Minnesota Department of Transportation
Office of Civil Rights**

GOOD FAITH EFFORTS AFFIDAVIT

STATE OF MINNESOTA
COUNTY OF _____

I, _____ hereby acknowledge that I am the _____
of _____, the company that has been
identified as the apparent successful bidder of the following State Project:

S.P. _____

The undersigned, having been first duly sworn, says that the information given in the above certificate and DBE Good Faith Efforts documentation is true and correct to the best of his or her knowledge and belief.

Signed _____
Bidder or authorized representative

Subscribed and sworn to before me

This _____ day of _____, 200_____

Notary Public

My commission expires _____, 20_____



MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF CIVIL RIGHTS

CERTIFICATE OF GOOD FAITH EFFORTS

S.P. _____
 Prime Contractor _____ Low Bid _____ Goal _____ %
 Total DBE Commitment _____ (_____ %)

LIST YOUR SOLICITATION OF ALL SUBCONTRACTORS, SUPPLIERS, AND SERVICE PROVIDERS
 (Include all DBE and non-DBE firms solicited)

Subcontractor/Supplier/Service provider	DBE?	Phone	Dates, Method of Contact	Description of Work	Dollar Amount of Quote
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

(Make additional copies of this form as necessary)

Min/DOT OCR
3/2008

Page _____ of _____

Withholding Affidavit for Contractors

This affidavit must be approved by the Minnesota Department of Revenue before the state of Minnesota or any of its subdivisions can make final payment to contractors.

Please type or print clearly. This will be your mailing label for returning the completed form.

Company name		Daytime phone ()	Minnesota tax ID number
Address		Total contract amount \$	Month/year work began
City	State	Zip Code	Month/year work ended
		Amount still due \$	

Project
information

Project number	Project location			
Project owner	Address	City	State	Zip code
Did you have employees work on this project? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, who did the work?				

Contractor type

Check the box that describes your involvement in the project and fill in all information requested.

☐ **Sole contractor**

☐ **Subcontractor**

Name of contractor who hired you

Address

☐ **Prime contractor**—If you subcontracted out any work on this project, all of your subcontractors must file their own IC134 affidavits and have them certified by the Department of Revenue *before* you can file your affidavit. For each subcontractor you had, fill in the information below and attach a copy of each subcontractor's certified IC134. If you need more space, attach a separate sheet.

Business name

Address

Owner/Officer

Sign here

I declare that all information I have filled in on this form is true and complete to the best of my knowledge and belief. I authorize the Department of Revenue to disclose pertinent information relating to this project, including sending copies of this form, to the prime contractor if I am a subcontractor, and to any subcontractors if I am a prime contractor, and to the contracting agency.

Contractor's signature

Title

Date

Mail to: Minnesota Revenue, Mail Station 6610, St. Paul, MN 55146-6610

Certificate of Compliance

Based on records of the Minnesota Department of Revenue, I certify that the contractor who has signed this certificate has fulfilled all the requirements of Minnesota Statutes 290.92 and 270C.66 concerning the withholding of Minnesota income tax from wages paid to employees relating to contract services with the state of Minnesota and/or its subdivisions.

Department of Revenue approval

Date

Instructions for Form IC134

Who must file

If you are a prime contractor, a contractor or a subcontractor who did work on a project for the state of Minnesota or any of its local government subdivisions — such as a county, city or school district — you must file Form IC134 with the Minnesota Department of Revenue.

This affidavit must be certified and returned before the state or any of its subdivisions can make final payment for your work.

If you're a prime contractor and a subcontractor on the same project

If you were hired as a subcontractor to do work on a project, and you subcontracted all or a part of your portion of the project to another contractor, you are a prime contractor as well. Complete both the subcontractor and prime contractor areas on a single form.

When to file

The IC134 cannot be processed until you finish the work. If you submit the form before the project is completed, it will be returned to you unprocessed. Mail Form IC134 to the address at the bottom of the form.

If you are a subcontractor or sole contractor, send in the form when you have completed your part of the project.

If you are a prime contractor, send in the form when the entire project is completed and you have received certified affidavits from all of your subcontractors.

How to file

If you have fulfilled the requirements of Minnesota withholding tax laws, the Department of Revenue will sign your affidavit and return it to you.

If any withholding payments are due to the state, Minnesota law requires certified payments before we approve the IC134.

Submit the certified affidavit to the government unit for which the work was done to receive your final payment. If you are a subcontractor, submit the certified affidavit to your prime contractor to receive your final payment.

Minnesota tax ID number

You must enter your Minnesota tax ID number on the form. You must have a Minnesota tax ID number if you have employees who work in Minnesota.

If you don't have a Minnesota ID number, you must apply for one. Call 651-282-5225.

An applications (Form ABR) is also available on our website at www.taxes.state.mn.us.

If you have no employees and did all the work yourself, you do not need a Minnesota tax ID number. If this is the case, enter your Social Security number in the space for Minnesota tax ID number and explain who did the work.

Information and assistance

If you need help or more information to complete this form, call 651-282-9999.

Additional forms are available on our website at www.taxes.state.mn.us or by calling 651-296-4444. TTY: Call 711 for Minnesota Relay.

We'll provide information in other formats upon request to persons with disabilities.

Use of information

The Department of Revenue needs all the information to determine if you have met all state income tax withholding requirements. If all required information is not provided, the IC134 will be returned to you for completion.

All information on this affidavit is private by state law. It cannot be given to others without your permission, except to the Internal Revenue Service, other states that guarantee the same privacy and certain government agencies as provided by law.



Minnesota Department of Transportation

Request to Sublet Form (Standard Specification 1801)

Prime Contractor Information

Prime Contractor:	Telephone Number: ()
State Project Number:	Fax Number: ()
Project Location:	Email:

Important Notices and Instructions

1. The Prime Contractor must complete all sections of this form, acquire all applicable signatures and submit it to the Project Engineer (P.E.) **10 days** prior to the first day of work for each Subcontractor; if necessary, the Prime Contractor may attach additional sheets. In order to ensure compliance with Mn/DOT Specification 1801, the Prime Contractor shall utilize the Request to Sublet Summary Form; <http://www.dot.state.mn.us/const/labor/documents/contractdocs/rtssummary.xls>
2. The Prime Contractor's organization shall perform work amounting to not less than 40 percent of the total original Contract. If the contract contains Disadvantaged Business Enterprise (DBE) and/or Targeted Group Business (TGB) established goals, the Prime Contractor's organization shall perform work amounting to not less than 30 percent of the total original Contract.
3. A First Tier Subcontractor may sublet up to 50 percent of its original Contract.
4. A Second Tier Subcontractor may not sublet any portion of its work under the Contract.
5. Upon approval, the P.E. will sign the form and provide a copy to the Prime Contractor.
6. Upon request, the Prime Contractor will provide a copy of its subcontracts to the P.E. or the Department.
7. Each Subcontractor must complete and submit a IC-134 form to the Department before the State of Minnesota or its Subdivisions will issue final payment to the Prime Contractor.

First Tier Subcontractor Information

First Tier Subcontractor:	Federal Tax I.D. Number:
Street Address:	State Tax I.D. Number:
City, State, Zip Code:	Email:
Telephone Number: ()	Certified DBE Contractor: <input type="checkbox"/> Yes <input type="checkbox"/> No
Fax Number: ()	Currently Debarred or Suspended: <input type="checkbox"/> Yes <input type="checkbox"/> No

Specification or Item No.	Specification or Item Description	Quantity	Unit of Measurement	Unit Price	Amount
The Prime Contractor and/or First Tier Subcontractors shall not sublet any portion of its Contract without prior written consent from the P.E.				<u>Total</u> %	<u>Total</u> \$

Second Tier Subcontractor Information

Second Tier Subcontractor:			Federal Tax I.D. Number:		
Street Address:			State Tax I.D. Number:		
City, State, Zip Code:			Email:		
Telephone Number: ()			Certified DBE Contractor: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Fax Number: ()			Currently Debarred or Suspended: <input type="checkbox"/> Yes <input type="checkbox"/> No		
Specification or Item No.	Specification or Item Description	Quantity	Unit of Measurement	Unit Price	Amount
					<u>Total</u>
					\$

CONTRACTOR'S STATEMENT OF COMPLIANCE

<u>Print Name and Title of Prime Contractor Representative</u>	<u>Signature</u>	<u>Date</u>
As a representative of the Prime Contractor, I hereby certify that the information described on this form is truthful and accurate to the best of my knowledge. I certify that all subcontracts contain at a minimum the Federal and/or State Special Provisions Division A, Federal and/or State certified prevailing wage determinations and the State certified truck rental rates. I will ensure that all subcontractors demonstrate compliance with all contract specifications. Additionally, I understand that prior written consent to sublet any portion of the contract does not relieve the Prime Contractor of liabilities and obligations under the Contract and Bonds.		
<u>Print Name and Title of First Tier Subcontractor Representative</u>	<u>Signature</u>	<u>Date</u>
As a representative of the First Tier Subcontractor, I hereby certify that all company information is true and accurate and that our company has contracted to perform the work prescribed in the above-mentioned specifications/item descriptions. I've reviewed and understand all applicable contract specifications, which include but are not limited to the following: Federal and/or State Special Provisions Division A, Federal and/or State certified prevailing wage determinations, State certified truck rental rates and have provided these specifications to all Second Tier Subcontractors.		
<u>Print Name and Title of Second Tier Subcontractor Representative</u>	<u>Signature</u>	<u>Date</u>
As a representative of the Second Tier Subcontractor, I hereby certify that all company information is true and accurate and that our company has contracted to perform the work prescribed in the above-mentioned specifications/item descriptions. I've reviewed and understand all applicable contract specifications, which include but are not limited to the following: Federal and/or State Special Provisions Division A, Federal and/or State certified prevailing wage determinations, State certified truck rental rates.		
<u>Print Name and Title of Project Engineer</u>	<u>Signature</u>	<u>Date</u>
As a representative of the Department, I approve the Prime Contractor's utilization of the above-mentioned Subcontractors. Additionally, the Prime Contractor has complied with the terms established in Mn/DOT Standard Specifications for Construction, Section 1801.		

All persons signing this form understand that willful falsification of this document may result in civil and/or criminal prosecution under federal and/or state law. See Minnesota Statutes 16B, 161.315, Subdivision 2, 177.43, Subdivision 5, 177.44, Subdivision 6, 609.63; or the United States Code 18 U.S.C. 1001, 31 U.S.C. 231, CFR 5.12.

For additional information, visit the Labor Compliance website at: <http://www.dot.state.mn.us/const/labor/>

LABOR STANDARDS UNIT

**NOTICE OF CERTIFICATION OF TRUCK RENTAL RATES AND EFFECTIVE
DATE PURSUANT TO *MINNESOTA RULES*, PART 5200.1105**

On May 10, 2010 the commissioner certified the minimum truck rental rates for highway projects in the state's ten highway and heavy construction areas for trucks and drivers operating "operating "five or more axle units, straight body trucks," "four axle units, straight body trucks," "three axle units," "tractor only," and "tractor trailers." The certification by the commissioner came after Notice of Determination of Truck Rental Rates by the commissioner, including the determination of truck operating costs, was published in the *State Register* on March 22, 2010 and the informal conference pursuant to *Minnesota Rules*, Part 5200.1105 to receive further public input prior to certification was held at the department on April 12, 2010.

The operating costs were determined by survey on a statewide basis. The operating cost for five or more axle units, straight body trucks" is determined to be \$44.46 per hour. The operating cost for "four axle units, straight body trucks" is determined to be \$36.81 per hour. The operating cost for "three axle units" is determined to be \$37.35 per hour. The operating cost for "tractor only" is determined to be \$41.58 per hour. The operating cost for "trailer only" is determined to be \$11.46 per hour. The operating cost for "tractor trailers" is determined to be \$53.04 per hour.

Adding the prevailing wage for drivers of these five types of trucks from each of the State's ten highway and heavy construction areas to the operating costs, the minimum hourly truck rental rate for the five types of trucks in each area is determined to be as follows:

	Tractor Trailer	Five or more axle	Four axle	Three Axle	Tractor only
Region 1	92.79	83.66	76.01	76.45	81.33
Region 2	86.46	77.37	69.72	63.30	75.00
Region 3	75.41	67.58	59.93	61.14	63.95
Region 4	74.47	65.36	57.71	70.11*	63.01
Region 5	89.99	68.31	60.66	64.08	78.53
Region 6	90.99	81.86	74.21	74.65	79.53
Region 7	86.46	77.37	69.72	70.11*	75.00
Region 8	79.42	65.21	57.56	50.82	67.96
Region 9	93.19	84.06	76.41	76.85	81.73
Region 10	86.46	77.37	69.72	50.12	75.00

*Correction to prevailing wage labor rate in Regions 4 & 7 effective May 10, 2010 from \$33.01 to \$32.76.

The operating costs, including the average truck broker fee paid by those survey respondents who reported paying truck broker fees, and the truck rental rates may also be reviewed by accessing the department's web site at www.dli.mn.gov. Questions regarding the operational costs and truck rental rates can be answered by calling (651)284-5091.

The minimum truck rental rates certified for these five types of trucks in the state's ten highway and heavy construction areas will be effective for all highway and heavy construction projects financed in whole or part with state funds advertised for bid on or after May 10, 2010.


STEVE SVIGGUM
COMMISSIONER

NOTICE TO BIDDERS

SUSPENSIONS/DEBARMENTS

DEPARTMENT OF TRANSPORTATION

NOTICE IS HEREBY GIVEN that the Department of Transportation (Mn/DOT) has ordered that the following vendors be suspended effective December 28, 2009, until final disposition of the June 25, 2010 hearing or hearing appeal:

Riley Bros. Companies Inc. and its affiliates, Morris MN
Riley Bros. Construction Inc. and its affiliates, Morris MN

NOTICE IS HEREBY GIVEN that the Department of Transportation (Mn/DOT) has ordered that the following vendors be debarred for a period of three (3) years, effective February 24, 2010 until February 24, 2013:

Joseph Edward Riley, Morris MN
John Thomas Riley, Morris MN

Minnesota Statutes, Section 161.315, prohibits the Commissioner, counties, towns or home rule or statutory cities from awarding or approving the award of a contract for goods or services to a person who is suspended or debarred; including

- 1) any contract under which a debarred or suspended person will serve as a subcontractor or material supplier,
- 2) any business or affiliate which the debarred or suspended person exercises substantial influence or control, and
- 3) any business or entity which is sold or transferred by a debarred person remains ineligible during the period of the seller's or transfer's debarment.

DEPARTMENT OF ADMINISTRATION

The Department of Administration in accordance with Minnesota Rules 1230.1150 has debarred and disqualified the following persons and businesses from entering into or receiving a State of Minnesota contract.

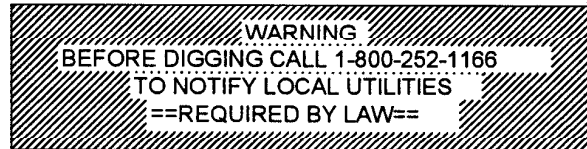
NAME	DATE OF DEBARMENT
Joseph Edward Riley East 7 th Street & Highway 59 Bypass Morris, Minnesota 56267	November 9, 2009 Through November 9, 2012
John Thomas Riley East 7 th Street & Highway 59 Bypass Morris, Minnesota 56267	November 9, 2009 Through November 9, 2012
Riley Bros. Construction, Inc. East 7 th Street & Highway 59 Bypass Morris, Minnesota 56267	November 9, 2009 Through November 9, 2012
Riley Bros. Companies Inc. East 7 th Street & Highway 59 Bypass Morris, Minnesota 56267	November 9, 2009 Through November 9, 2012
Polyphase Electric Company 2515 West Superior Street Duluth, MN 55816-0151	May 5, 2010 Through May 5, 2012
Frances Harkonen 2515 West Superior Street Duluth, MN 55816-0151	May 5, 2010 Through May 5, 2012

Minnesota Rules Part 1230.1150, Subpart 6 requires the Materials Management Division to maintain a master list of all suspensions and debarments. The master list must retain all information concerning suspensions and debarments as a public record for at least three years following the end of a suspension or debarment. This list can be found at: <http://www.mmd.admin.state.mn.us/debarredreport.asp>

**INFORMATION TO BE GIVEN TO GOPHER STATE ONE CALL SYSTEM
FOR LOCATIONS OF ALL UTILITIES (1-800-252-1166)**

CALL 48 HOURS (2 WORKING DAYS) IN ADVANCE OF ANY EXCAVATION.
THE ONE CALL OPERATOR WILL REQUIRE THE FOLLOWING INFORMATION:

- | | |
|-------------------------------------|--|
| 1. TYPE OF REQUEST BEING PLACED. | 9. DURATION OF WORK |
| 2. TELEPHONE/CALLER I.D. NUMBER | 10. TYPE OF WORK |
| 3. CALLER NAME AND COMPANY NAME. | 11. WHO THE WORK IS BEING DONE FOR. |
| 4. MAILING ADDRESS | 12. COUNTY AND CITY/PLACE NAME. |
| 5. ALTERNATE CONTACT NAME & PHONE # | 13. STREET ADDRESS OF WORK SITE |
| 6. DATE WORK IS TO BEGIN | 14. MARKING INSTRUCTIONS |
| 7. WHETHER EXPLOSIVES WILL BE USED | 15. REMARKS |
| 8. IS WORK IN RIGHT OF WAY (R.O.W.) | 16. TOWNSHIP, RANGE, SECTION & QUARTER |



**UTILITY LOCATION & COORDINATION COUNCIL
UNIFORM COLOR CODE**

RED	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIAL.
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT.
BLUE	WATER, IRRIGATION AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES.
FLUORESCENT PINK	FOR SURVEYING PURPOSES.
WHITE	PROPOSED EXCAVATION.

**GUIDELINES FOR UNIFORM
TEMPORARY MARKING
OF UNDERGROUND FACILITIES**

THIS MARKING GUIDE PROVIDES FOR UNIVERSAL USE AND UNDERSTANDING OF THE TEMPORARY MARKING OF SUBSURFACE FACILITIES TO PREVENT ACCIDENTAL DAMAGE OR SERVICE INTERRUPTION BY CONTRACTORS, UTILITY COMPANIES OR ANY OTHERS WORKING ON OR NEAR THOSE UNDERGROUND FACILITIES.

USE OF MARKINGS

USE COLOR-CODED SURFACE MARKS (PAINT OR SIMILAR COATING) TO INDICATE THE LOCATION, CHANGE IN DIRECTION AND DEADENDS OF BURIED LINES. TO INCREASE VISIBILITY, COLOR-CODED VERTICAL MARKERS (TEMPORARY STAKES OR FLAGS) SHOULD SUPPLEMENT SURFACE MARKS. ALL MARKS AND MARKERS SHOULD INDICATE THE NAME, INITIALS OR LOGO OF THE COMPANY THAT OWNS OR OPERATES THE LINE, AND THE WIDTH OF THE FACILITY IF IT IS GREATER THAN TWO INCHES.

IF THE SURFACE OVER THE BURIED LINE IS TO BE REMOVED, SUPPLEMENTAL OFFSET MARKING MAY BE USED. OFFSET MARKINGS SHOULD BE UNIFORM ALIGNMENT AND MUST CLEARLY INDICATE THAT THE ACTUAL FACILITY IS A SPECIFIC DISTANCE AWAY.

LOCATION TOLERANCE ZONE

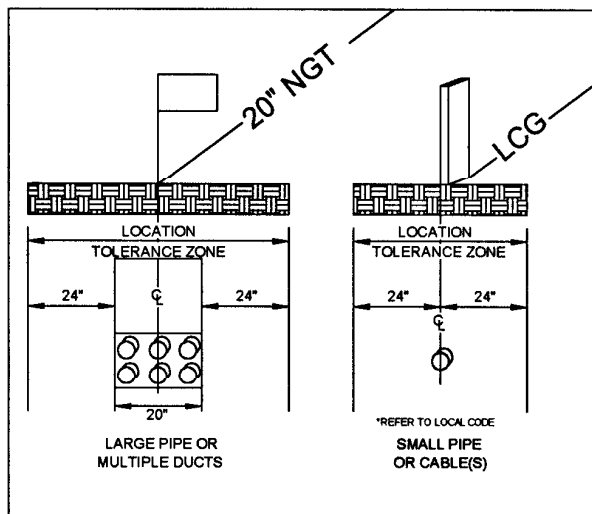
USUALLY, ANY EXCAVATION WITHIN THE LOCATION TOLERANCE ZONE MUST BE PERFORMED WITH HAND TOOLS UNTIL THE MARKED FACILITY IS EXPOSED.

PROPOSED EXCAVATION

THE LOCATION OR THE BOUNDARY OF PROPOSED EXCAVATIONS SHOULD BE INDICATED IN A COLOR (USUALLY WHITE) WHICH DOES NOT CONFLICT WITH THE UNIFORM COLOR CODE.

ONE-CALL DAMAGE PREVENTION SYSTEMS

EXISTING ONE-CALL SYSTEMS MUST BE USED TO MINIMIZE DAMAGE TO BURIED LINES.



SPECIAL INSTRUCTIONS TO BIDDERS REGARDING EEO

Notice of Requirement for Affirmative Action (41 CFR Part 60-2 and Executive Order 11246, as amended)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

TIMETABLES

Goals of minority participation in each trade	Goals for female participation in each trade
1.0% (Vol. 45, Fed. Reg., Pg. 65984, 10/03/80)	6.9% (City states 7%)

These goals are applicable to all the contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The contractor's compliance with the executive order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR Part 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project, for the sole purpose of meeting the contractor's goals, shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director, OFCCP, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and, the geographical area in which the contract is to be performed.
4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is **Duluth, MN.**

**Certification Regarding Debarment, Suspension,
Ineligibility and Voluntary Exclusion
(49 CFR PART 29)**

The bidder (offeror) certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntary excluded from participation in this transaction by any Federal department or agency. It further agrees that by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offeror/contractor or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

**Certification Regarding Foreign Trade Restrictions
(49 CFR PART 30)**

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

a. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);

b. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list.

c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project; the Federal Aviation Administration may direct, through the Sponsor, cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely upon the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide immediate written notice to the contractor, if at any time it learns that its certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that the contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the Sponsor, cancellation of the contract or subcontract for default at no cost to the Government.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and

information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

**Buy American Certification
(Aviation Safety and Capacity Expansion Act of 1990)**

By submitting a bid/proposal under this solicitation, except for those items listed by the offeror below or on a separate and clearly identified attachment to this bid/proposal, the offeror certifies that steel and each manufactured product, is produced in the United States, as defined in the clause Buy American - Steel and Manufactured Products for Construction Contracts, and that components of unknown origin are considered to have been produced or manufactured outside the United States.

Offerors may obtain from **the City of Duluth, MN** a listing of articles, materials, and supplies excepted from this provision.

PRODUCT	COUNTRY OF ORIGIN

APPENDIX D

List of Supplies/Materials that the U.S. Government has determined are not produced in the United States in sufficient and reasonably available quantities and of sufficient quality. (January 1991)

- | | |
|--|---|
| <ul style="list-style-type: none"> • Acetylene, black • Agar, bulk • Anise • Antimony, as metal or oxide • Asbestos, amosite, chrysolite and crocidolite
 • Bananas • Bauxite
 • Beef, corned, canned • Beef extract • Bephenium Hydroxynapthoate • Bismuth • Books, trade, text, technical, or scientific; newspapers; pamphlets; magazines; periodicals; printed briefs and films; not printed in the United States and for which domestics editions are not available • Brazil nuts, unroasted • Cadmium, ores and flue dust • Calcium cyanamide • Capers • Cashew nuts • Castor beans and castor oil • Chalk, English • Chestnuts • Chicle
 • Chrome ore or chromite
 • Cinchona bark • Cobalt, in cathodes, rondelles, or other primary ore and metal forms • Cocoa beans • Coconut and coconut meat, unsweetened, in shredded, desiccated or similarly prepared form • Coffee, raw or green bean
 • Colchicine alkaloid, raw • Copra • Cork, wood or bark and waste | <ul style="list-style-type: none"> • Emetine, bulk • Ergot, crude • Erthrityl tetranitrate • Fair linen, altar • Fibers of the following type: abaca, abace, agave, coir, flax, jute, jute burlaps, palmyra and sisal • Goat and kidskins • Graphite, natural, chrystalline, crucible grade • Handsewing needles • Hemp yarn • Hog bristles for brushes • Hyoscine, bulk • Ipecac, root
 • Iodine, crude • Kaurigum • Lac • Leather, sheepskin, hair type • Lavender oil • Manganese • Menthol, natural bulk • Mica • Microprocessor chips (brought onto a construction site as separate units for incorporation into building systems during construction or repair and alteration of real property) • Nickel, primary, in ingots, pigs, shots, cathodes, or similar forms; nickel oxide and nickel salts • Nitroguanidine (also known as picrite) • Nux vomica, crude
 • Oiticica oil • Olive oil
 • Olives (green), pitted or unpitted, or stuffed, in bulk • Opium, crude • Oranges, mandarin, canned • Petroleum, crude oil, unfinished oils, and finished products (see definitions below) |
|--|---|

- Cover glass, microscope slide
- Cryolite, natural
- Dammar gum
- Diamonds, industrial, stones and abrasives
- Pine needle oil
- Platinum and related group metals, refined, as sponge, powder, ingots, or cast bars
- Pyrethrum flowers
- Quartz crystals

APPENDIX D

List of Supplies/Materials that the U.S. Government has determined are not produced in the United States in sufficient and reasonably available quantities and of sufficient quality. (January 1991) (CONTINUED)

- Quebracho
- Quinidine
- Quinine
- Rabbit fur felt
- Radium salts, source and special nuclear materials
- Rosettes
- Rubber, crude and latex
- Rutile
- Santonin, crude
- Secretin
- Shellac
- Silk, raw and unmanufactured
- Spare and replacement parts for equipment of foreign manufacture, and for which domestic parts are not available
- Spices and herbs, in bulk
- Sugars, raw
- Swords and scabbards
- Talc, block, steatite
- Tantalum
- Tapioca flour and cassava
- Tartar, crude; tartaric acid and cream or tartar in bulk
- Tea in bulk
- Thread, metallic (gold)
- Thyme oil
- Tin in bars, blocks, and pigs
- Triprolidine hydrochloride
- Tungsten
- Vanilla beans
- Venom, cobra
- Wax, canauba
- Woods; logs, veneer, and lumber of the following species: Alaskan yellow cedar, angelique, balsa, ekki, greenhart, lignum vitae, mahogany, and teak
- Yarn, 50 Denier rayon

APPENDIX D

List of Supplies/Materials that the U.S. Government has determined are not produced in the United States in sufficient and reasonably available quantities and of sufficient quality. (January 1991) (CONTINUED)

Petroleum terms are used as follows:

“Crude oil” means crude petroleum, as it is produced at the well head, and liquids (under atmospheric conditions) that have been recovered from mixtures of hydrocarbons that existed in a vaporous phase in a reservoir and that are not natural gas products.

“Finished products” means any one or more of the following petroleum oils, or a mixture or combination of these oils, to be used without further process except blending by mechanical means:

- (A) “Asphalt” – a solid or semi-solid cementitious material that (1) gradually liquefies when heated, (2) has bitumens as its predominating constituents, and (3) is obtained in refining crude oil.
- (B) “Fuel oil” – a liquid or liquefiable petroleum product burned for lighting or for the generation of heat or power and derived directly or indirectly from crude oil, such as kerosene, range oil, distillate fuel oils, gas oil, diesel fuel, topped crude oil, or residues.
- (C) “Gasoline” – a refined petroleum distillate that , by its consumption, is suitable for use as a carburant in internal combustion engines.
- (D) “Jet fuel” – a refined petroleum distillate used to fuel jet propulsion engines.
- (E) “Liquefied gases” – hydrocarbon gases recovered from natural gas or produced from petroleum refining and kept under pressure to maintain a liquid state at ambient temperatures.
- (F) “Lubricating oil” – a refined petroleum distillate or specially treated petroleum residue used to lessen friction between surfaces.
- (G) “Naphtha” – a refined petroleum distillate falling within a distillation range overlapping the higher gasoline and the lower kerosenes.
- (H) “Natural gas products” – liquids (under atmospheric conditions; including natural gasoline, that -
 - (1) are recovered by a process of absorption, compression, refrigeration, cycling, or a combination of these processes, from mixtures of hydrocarbons that existed in a vaporous phase in a reservoir, and
 - (2) when recovered and without processing in a refinery, definitions of products contained in subdivision (B), (C), and (G) above.
- (I) “Residual fuel oil” – a topped crude oil or viscous residuum that, as obtained in refining or after blending with other fuel oil, meets or is the equivalent of MILSPEC Mil-F-859 for Navy Special Fuel Oil and any more viscous fuel oil, such as No. 5 or Bunker C.

- (J) "Unfinished oils" means one or more the petroleum oils listed under "Finished products" above, or a mixture or combination of these oils, that are to be further processed other than by blending by mechanical means.

~~CERTIFICATION OF BIDDER REGARDING~~

~~EQUAL EMPLOYMENT OPPORTUNITY~~

~~GENERAL~~

~~BIDDER'S NAME~~ _____

~~ADDRESS~~ _____

~~INTERNAL REVENUE SERVICE EMPLOYER IDENTIFICATION NO.~~ _____

~~NONSEGREGATED FACILITIES~~

~~NOTICE TO PROSPECTIVE FEDERALLY ASSISTED CONSTRUCTION CONTRACTORS (41 CFR Part 60-1.8)~~

~~1 A Certification of Nonsegregated Facilities must be submitted prior to the award of a federally assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.~~

~~2 Contractors receiving federally assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause.~~

~~NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.~~

~~NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENTS FOR CERTIFICATION OF NONSEGREGATED FACILITIES~~

~~1 A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.~~

~~2 Contractors receiving subcontract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause.~~

~~NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.~~

~~CERTIFICATION OF NONSEGREGATED FACILITIES~~

~~The federally assisted construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor certifies that she or he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.~~

~~As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause, and that she or he will retain such certifications in his files.~~

**~~NOTICE TO PROSPECTIVE CONTRACTORS OF REQUIREMENT FOR
CERTIFICATION OF NONSEGREGATED FACILITIES~~**

~~— A Certification of Nonsegregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.~~

~~Certification—The information above is true and complete to the best of my knowledge and belief.~~

~~Name and Title of Signor (Please Type)~~

~~Signature~~

~~Date~~

~~NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.~~

SECTION A

WAGE, LABOR, EEO, SAFETY AND GENERAL REQUIREMENTS (Federal Aviation Administration (FAA) Requirements)

A-1 Airport and Airway Improvement Program Project.

The work in this contract is included in **FAA Project No. 03-27-0024-48-10** which is being undertaken and accomplished by the **Duluth Airport Authority** (Sponsor) in accordance with the terms and conditions of a grant agreement between the Sponsor and the United States, under the Airport and Airway Improvement Act of 1982 (P.L. 97-248) as amended by the Airport and Airway Safety and Capacity Expansion Act of 1987 (P.L. 100-223) and Part 152 of the Federal Aviation Regulations (14 CFR Part 152), pursuant to which the United States has agreed to pay a certain percentage of the costs under those Acts. The United States is not a party to this contract and no reference in this contract to the FAA or any representative thereof, or the United States, by the contract, makes the United States a party to this contract.

A-2 Consent to Assignment.

The contractor shall obtain the prior written consent of the Sponsor to any proposed assignment of any interest in or part of this contract.

A-3 Convict Labor.

No convict labor may be employed under this contract.

A-4 Veterans Preference.

In the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to veterans of the Vietnam era and disabled veterans as defined in Section 515(c)(1) and (2) of the Airport and Airway Improvement Act of 1982. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

A-5 Withholding: Sponsor from Contractor.

Whether or not payments or advances to the **Duluth Airport Authority** (Sponsor) are withheld or suspended by the FAA, the Sponsor may withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics employed by the contractor or any subcontractor on the work, the full amount of wages required by this contract.

A-6 Nonpayment of Wages.

If the contractor or subcontractor fails to pay any laborer or mechanic employed or working on the site of the work any of the wages required by this contract, the **Duluth Airport Authority** (Sponsor) may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment or advance of funds until the violations cease.

A-7 FAA inspection and review.

The contractor shall allow any authorized representative of the FAA to inspect and review any work or materials used in the performance of this contract.

A-8 Subcontracts.

The contractor shall insert in each of his subcontracts the provisions contained in paragraphs A-1, A-3, A-4, A-5, A-6, and A-7 requiring the subcontractors to include these provisions in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

A-9 Contract termination.

Any violation or breach of the terms of this contract on the part of the contractor or their subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement. The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. (49 CFR Part 18).

A-10 Inspection of Records.

The contractor shall maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers, and records of the contractor which are directly pertinent to the specific contract for the purposes of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all other pending matters are closed. (49 CFR Part 18.36(i)).

A-11 Rights to Inventions.

All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed. Information regarding these rights is available from the FAA and the Sponsor. (49 CFR Part 18.36(i)(8)).

A-12 General Civil Rights Provisions.

The contractor assures that it will comply with pertinent statutes, Executive orders and such rules as are promulgated to assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport a program, except where Federal assistance is to provide, or is in the form of personal property or real property or interest therein or structures or improvements thereon. In these cases the provision obligates the party or any transferee for the longer of the following periods: (a) the period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits or (b) the period during which the airport sponsor or any transferee retains ownership or possession of the property. In the case of contractors, this provision

binds the contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

SECTION B

DAVIS-BACON ACT REQUIREMENTS (29 CFR PART 5)

B-1 Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determinations; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140).

B-2 Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

B-3 Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the

plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph 5.5(a)(3)(i) above. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under paragraph (3)(i) above and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

B-4 Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable programs approved.

(iii) Equal Employment Opportunity (EEO). The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

B-5 Compliance With Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

B-6 Subcontracts.

The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR Part 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

B-7 Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for the debarment as a contractor and a subcontractor as provided in 29 CFR 5.12

B-8 Compliance With Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

B-9 Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

B-10 Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

SECTION C

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS (29 CFR PART 5)

C-1 Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

C-2 Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph C-1 above, the contractor or any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph C-1 above, in the sum of \$3,000 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph C-1 above.

C-3 Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph C-2 above.

C-4 Subcontractors.

The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs C-1 through C-4 and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs C-1 through C-4 of this section.

C-5 Working Conditions.

No contractor or subcontractor may require any laborer or mechanic employed in the performance of any contract to work in surroundings or under working conditions that are unsanitary, hazardous or dangerous to his health or safety as determined under construction safety and health standards (29 CFR Part 1926) issued by the Department of Labor.

SECTION D

CLEAN AIR AND WATER POLLUTION CONTROL REQUIREMENTS

D-1 Any other provision herein to the contrary notwithstanding, the contractor in carrying out work under this contract, shall at all times comply with all applicable state and federal air and water quality standards; with all pollution control laws; and with such rules, regulations, and directives as may be lawfully issued by a local, state, or federal agency having within its jurisdiction the protection of the environment in the area surrounding where work under this contract will be performed. In addition, the contractor shall comply with directives given by the Project Engineer in implementation of the letter and intent of FAA Advisory Circular 150/5370-10, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control. Copies of this Advisory Circular can be obtained from Department of Transportation, Distribution Unit, TAD-484.3, Washington, D.C. 20590.

D-2 Contractors and subcontractors agree:

a. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

b. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

c. That, as a condition for the award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

d. To include or cause to be included in any construction contract or subcontract which exceeds \$100,000 the aforementioned criteria and requirements.

SECTION E

CONTRACTOR CONTRACTUAL REQUIREMENTS PURSUANT TO CIVIL RIGHTS ACT OF 1964, TITLE VI (49 CFR PART 21)

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

E-1 Compliance with Regulations. The contractor shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

E-2 Nondiscrimination. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

E-3 Solicitations for Subcontracts, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

E-4 Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration (FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor or the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.

E-5 Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to:

- a. Withholding of payments to the contractor under the contract until the contractor complies, and/or
- b. Cancellation, termination, or suspension of the contract, in whole or in part.

E-6 Incorporation of Provisions. The contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the sponsor or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Sponsor to enter into such litigation to protect the interests of the

sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

SECTION F

TERMINATION OF CONTRACT (49 CFR PART 18)

F-1 The Sponsor may, by written notice, terminate this contract in whole or in part at any time, either for the Sponsor's convenience or because of failure to fulfill the contract obligations. Upon receipt of such notice services shall be immediately discontinued (unless the notice directs otherwise) and all materials as may have been accumulated in performing this contract, whether completed or in progress, delivered to the Sponsor.

F-2 If the termination is for the convenience of the Sponsor, an equitable adjustment in the contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed services.

F-3 If the termination is due to failure to fulfill the contractor's obligations, the Sponsor may take over the work and prosecute the same to completion by contract or otherwise. In such case, the contractor shall be liable to the Sponsor for any additional cost occasioned to the Sponsor thereby.

F-4 If, after notice of termination for failure to fulfill contract obligations, it is determined that the contractor had not so failed, the termination shall be deemed to have been effected for the convenience of the Sponsor. In such event, adjustment in the contract price shall be made as provided in paragraph 2 of this clause.

F-5 The rights and remedies of the sponsor provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

SECTION G

BUY AMERICAN - STEEL AND MANUFACTURED PRODUCTS FOR CONSTRUCTION CONTRACTS (Aviation Safety and Capacity Expansion Act of 1990)

(a) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program. The following terms apply:

1. Steel and manufactured products. As used in this clause, steel and manufactured products include (1) those produced in the United States or (2) a manufactured product produced in the United States, if the cost of its components mined, produced or manufactured in the United States exceeds 60 percent of the cost of all its components and final assembly has taken place in the United States. Components of foreign origin of the same class or kind as the products referred to in subparagraphs b. (1) or (2) shall be treated as domestic.

2. Components. As used in this clause, components means those articles, materials, and supplies incorporated directly into steel and manufactured products.

3. Cost of Components. This means the cost for production of the components, exclusive of final assembly labor costs.

(b) The successful bidder will be required to assure that only domestic steel and manufactured products will be used by the Contractor, subcontractors, materialmen, and suppliers in the performance of this contract, except those:

1. that the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality;

2. that the U.S. Department of Transportation has determined, under the Aviation Safety and Capacity Expansion Act of 1990, that domestic preference would be inconsistent with the public interest; or

3. that inclusion of domestic material will increase the cost of the overall project contract by more than 25 percent.

SECTION H

EQUAL EMPLOYMENT OPPORTUNITY (41 CFR PART 60-1.4(b))

During the performance of this contract, the contractor agrees as follows:

H-1 The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action 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. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

H-2 The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

H-3 The contractor will send to each labor union or representative of workers with which s/he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

H-4 The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

H-5 The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

H-6 In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedure authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

H-7 The contractor will include the portion of the sentence immediately preceding paragraph D-1 and the provisions of paragraphs D-1 through D-7 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provision, including sanctions for noncompliance: *Provided, however*, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the

contractor may request the United States to enter into such litigation to protect the interests of the United States.

SECTION I

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (41 CFR 60-4.3)

I-1 As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all) persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

I-2 Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

I-3 If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors shall be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

I-4 The contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female

utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical area where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

I-5 Neither the provisions of any collective bargaining agreement nor the failure by a union with whom the contractor has a collective bargaining agreement to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246 or the regulations promulgated pursuant thereto.

I-6 In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees shall be employed by the contractor during the training period and the contractor shall have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees shall be trained pursuant to training programs approved by the U.S. Department of Labor.

I-7 The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a minority person or female sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or

approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students; and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations, such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the contractor's EEO policies and affirmative action obligations.

I-8 Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor community, or other similar groups of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

I-9 A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non minority. Consequently, if the particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally,) the contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.

I-10 The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

I-11 The contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

I-12 The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

I-13 The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

I-14 The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone number, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

I-15 Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

SECTION J

MANDATORY REQUIREMENT FOR ALL AIP FUNDED CONSTRUCTION PROJECTS INVOLVING ELECTRICAL ENERGY OR OTHER HAZARDOUS ENERGY SOURCES

For projects involving electrical energy or other hazardous energy source, the contractor shall submit a copy of their Lockout/Tagout program which meets the requirements of 29 CFR 1910.331, Safety Related Work Practices (OSHA). During the performance of electrical work, it is recommended that an unannounced inspection be performed by the airport sponsor or his agent to determine if the Lockout/Tagout program is being followed. Immediate action shall be taken to correct noncompliance, including suspension of work when necessary.

SECTION K

DISADVANTAGED BUSINESS ENTERPRISE CONTRACT PROVISIONS (49 CFR PART 26)

PART A

Policy. The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the City of Duluth, Minnesota, to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit bids/proposals. Award of this contract will be conditioned upon satisfying the requirements of this bid specification. These requirements apply to all bidders/offers, including those who qualify as a DBE. A DBE contract goal of **4.95 percent** has been established for this contract. The bidder/offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26 (Attachment 1), to meet the contract goal for DBE participation in the performance of this contract.

Contract Assurance (§26.13). The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate.

Prompt Payment (§26.29). The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 7 days from the receipt of each payment the prime contractor receives from the **Duluth Airport Authority, Duluth, MN**. The prime contractor agrees further to return retainage payments to each subcontractor within 7 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the **Duluth Airport Authority, Duluth, MN**. This clause applies to both DBE and non-DBE subcontractors.

DBE Participation. DBE Participation in this contract may be in form of a prime contract, subcontract, joint venture, or another arrangement that qualifies under 49 CFR Sections 26.55, "How is DBE participation counted toward goals?" or 26.53(g), both of which are included as Attachment 1.

Subcontract Clauses. All bidders and potential contractors hereby assure that they will include the above clauses in all subcontracts which offers further subcontracting opportunities.

PART B

It is further understood and agreed:

The award procedure for this solicitation will include the selection criteria of 49 CFR Part 26 to ensure that prime contracts are awarded to competitors that meet Disadvantaged Business Enterprise (DBE) goals.

Notification is hereby given that DBE goals are established for this prime contract. The goal for firms owned and controlled by socially and economically disadvantaged individuals is **4.95 percent** of the dollar value of this contract.

The bidder/offeror will be required to submit the following information: (1) the names and addresses of DBE firms that will participate in the contract; (2) a description of the work that each DBE firm will perform; (3) the dollar amount of the participation of each DBE firm participating; (4) written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal; (5) written confirmation from the DBE that it is participating in the contract as provided in the commitment made under (4); and (6) if the contract goal is not met, evidence of good faith efforts.

Agreements between bidder/proposer and a DBE in which the DBE promises not to provide subcontracting quotations to other bidders/proposers are prohibited. All bidders and proposers shall make a good faith effort to replace a DBE subcontractor that is unable to perform successfully with another DBE subcontractor.

The bidder shall establish and maintain records and submit regular reports, as required, which will identify and assess progress in achieving DBE subcontract goals and other DBE affirmative action efforts.

SECTION L

ENERGY CONSERVATION REQUIREMENTS (49 CFR PART 18.36(i)(13))

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

SECTION M

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES (49 CFR PART 20, APPENDIX A)

(1) No Federal appropriated funds shall be paid, by or on behalf of the contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any Federal grant and the amendment or modification of any Federal grant.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any Federal grant, the contractor shall complete and submit Standard Form-LLL, "Disclosure of Lobby Activities", in accordance with its instructions.

GENERAL PROVISIONS

SECTION 10

DEFINITION OF TERMS

Where portions of text have been lined through (~~example~~) this text has been deleted and does not apply to this project. Where portions of text have been added with shading (**example**), this text has been added and is binding to this project. This process is utilized throughout the specifications and contract documents (excluding the plans).

Whenever the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

10-01 AASHTO. The American Association of State Highway and Transportation Officials, the successor association to AASHO.

10-02 ACCESS ROAD. The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

10-03 ADVERTISEMENT. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

10-04 AIP. The Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

10-05 AIR OPERATIONS AREA. For the purpose of these specifications, the term air operations area shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

10-06 AIRPORT. Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; and airport buildings and facilities located in any of these areas, and includes a heliport.

10-07 ASTM. The American Society for Testing and Materials.

10-08 AWARD. The acceptance, by the Owner, of the successful bidder's proposal.

10-09 BIDDER. Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-10 BUILDING AREA. An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.

10-11 CALENDAR DAY. Every day shown on the calendar. The contract duration and phase durations set forth in the Contract Documents include inclement weather days normally encountered at the Project site, as well as observed holidays defined below. The Contractor shall be charged for each calendar day during the term of construction including observed holidays defined below and inclement weather days

normally encountered at the Project site. Normal inclement weather days shall be established by the Contractor obtaining the previous ten (10) years of inclement weather data from the National Oceanographic and Atmospheric Administration (NOAA) and averaging the previous ten (10) years of each type of inclement weather for each month and comparing it to each month of construction activities to determine if the number of inclement weather days occurring in any given month exceeds the average for that month over the past ten (10) years for that type of inclement weather, i.e. rain, snow, etc. If the Contractor is unable to work at least 50% of the normal work day on pre-determined controlling work items due to abnormal inclement weather conditions, the Contractor may not be charged a calendar day provided the Contractor submits data and records to justify not charging a calendar day for that specific day. Contract time shall be based upon calendar days counting from the effective date of the Notice to Proceed and including Saturdays, Sundays, observed holidays defined below, and other non-work days.

Legal Holidays for which a calendar day shall be charged but which the Contractor shall not be allowed to work are as follows:

New Year's Day

Memorial Day and the Saturday/Sunday prior to Memorial Day

July 4th

Labor Day and the Saturday/Sunday prior to Labor Day

Thanksgiving and the Friday and Saturday after Thanksgiving

Christmas Day

10-12 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the contract.

10-13 CONTRACT. The written agreement covering the work to be performed. The awarded contract shall include, but is not limited to: The Advertisement; The Contract Form; The Proposal; The Performance Bond; The Payment Bond; any required insurance certificates; The Specifications; The Plans, and any addenda issued to bidders.

10-14 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the contract.

10-15 CONTRACT TIME. The number of calendar days ~~or working days~~, stated in the proposal, allowed for completion of the contract, including authorized time extensions. ~~If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.~~

10-16 CONTRACTOR. The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.

10-17 DRAINAGE SYSTEM. The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

10-18 ENGINEER. The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering inspection of the contract work and acting directly or through an authorized representative. The Engineer shall be understood to be the Engineer of the Owner or the Owner's duly authorized representative.

10-19 EQUIPMENT. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-20 EXTRA WORK. An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

10-21 FAA. The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his/her duly authorized representative.

10-22 FEDERAL SPECIFICATIONS. The Federal Specifications and Standards, Commercial Item Descriptions, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government.

10-23 FORCE ACCOUNT. Force account construction work is construction that is accomplished through the use of material, equipment, labor, and supervision provided by the Owner or by another public agency pursuant to an agreement with the Owner. It is also construction performed by the Contractor through the use of material, equipment, labor, and supervision which includes an allowance for overhead and profit where no bid item or established payment provision is provided within the contract documents.

10-24 INSPECTOR. An authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-25 INTENTION OF TERMS. Whenever, in these specifications or on the plans, the words "directed," "required", "permitted", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words "approved", "acceptable", "satisfactory", or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject in each case to the final determination of the Owner.

Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

10-26 LABORATORY. The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer.

10-27 LIGHTING. A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

10-27A LIQUIDATED DAMAGES TO BE CHARGED. The Contractor shall be charged liquidated damages in the amounts defined below for each calendar day or night after the applicable time has elapsed until the work is completed and accepted by the Owner and Engineer.

10-28 MAJOR AND MINOR CONTRACT ITEMS. A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20 percent of the total amount of the award contract. All other items shall be considered minor contract items.

10-29 MATERIALS. Any substance specified for use in the construction of the contract work.

10-30 NOTICE TO PROCEED. A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.

10-31 OWNER. The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. For AIP contracts, the term "sponsor" shall have the same meaning as the term "Owner." Where the term "Owner" is capitalized in this document, it shall mean airport owner or sponsor only.

10-32 PAVEMENT. The combined surface course, base course, and subbase course, if any, considered as a single unit.

10-33 PAYMENT BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-34 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

10-35 PLANS. The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications.

10-36 PROJECT. The agreed scope of work for accomplishing specific airport development with respect to a particular airport.

10-37 PROPOSAL. The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

10-38 PROPOSAL GUARANTY. The security furnished with a proposal to guarantee that the bidder will enter into a contract if his/her proposal is accepted by the Owner.

10-38A RESIDENT PROJECT REPRESENTATIVE. An authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-39 RUNWAY. The area on the airport prepared for the landing and takeoff of aircraft.

10-40 SPECIFICATIONS. A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

10-41 SPONSOR. See definition above of "Owner."

10-42 STRUCTURES. Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; flexible and rigid pavements; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

10-43 SUBGRADE. The soil that forms the pavement foundation.

10-44 SUPERINTENDENT. The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

10-45 SUPPLEMENTAL AGREEMENT. A written agreement between the Contractor and the Owner covering (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25 percent, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

10-46 SURETY. The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.

10-47 TAXIWAY. For the purpose of this document, the term taxiway means the portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways or aircraft parking areas.

10-48 WORK. The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.

~~**10-49 WORKING DAY.** A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least 6 hours toward completion of the contract when work is suspended for causes beyond the Contractor's control, Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work, requiring the presence of an inspector, will be considered as working days.~~

END OF SECTION 10

SECTION 20

PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 ADVERTISEMENT (Notice to Bidders).

20-02 PREQUALIFICATION OF BIDDERS. Each bidder shall furnish the Owner satisfactory evidence of his/her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the owner satisfactory evidence of his/her financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the Contractor's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether his/her financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect his/her (bidder's) true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that he is prequalified with the State Highway Division and is on the current "bidder's list" of the state in which the proposed work is located. Such evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports hereinbefore specified provided the costs of projects submitted as evidence of prequalification is equal to the estimated costs of the project for which the bidder is submitting a bid.

Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner at the time of bid opening.

20-03 CONTENTS OF PROPOSAL FORMS. The Owner shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

20-04 ISSUANCE OF PROPOSAL FORMS. ~~The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:~~ The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following, but not limited to, reasons:

- a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.
- b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force (with the Owner) at the time the Owner issues the proposal to a prospective bidder.
- c. Contractor default under previous contracts with the Owner.
- d. Unsatisfactory work on previous contracts with the Owner.
- e. Contractor has an interest in any litigation or arbitration or other type claim against the Owner or Engineer.

20-05 INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly or by implication agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40 without in any way invalidating the unit bid prices.

20-06 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which he/she may make or obtain from his/her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 PREPARATION OF PROPOSAL. The bidder shall submit his/her proposal on the forms furnished by the Owner. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which he proposes to do each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign his/her proposal correctly and in ink. If the proposal is made by an individual, his/her name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state under the laws of which the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of his/her authority to do so and that the signature is binding upon the firm or corporation.

20-08 IRREGULAR PROPOSALS. ~~Proposals shall be considered irregular for the following reasons:~~ Proposals shall be considered irregular for the following, but not limited to, reasons:

- a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.
- b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced as interpreted by the Owner and Engineer.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-09 BID GUARANTEE. Each separate proposal shall be accompanied by a certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such check, or collateral, shall be made payable to the Owner. The proposal guarantee shall be in the amount of 5% of the maximum bid price submitted unless a different amount is required by the Owner.

20-10 DELIVERY OF PROPOSAL. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-11 WITHDRAWAL OR REVISION OF PROPOSALS. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by telegram before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-12 PUBLIC OPENING OF PROPOSALS. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-13 DISQUALIFICATION OF BIDDERS. ~~A bidder shall be considered disqualified for any of the following reasons:~~ A bidder shall be considered disqualified for any of the following, but not limited to, reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in the subsection titled ISSUANCE OF PROPOSAL FORMS of this section.

d. Where the Bidder has an interest in any litigation or arbitration or other type claim against the Owner or Engineer.

e. Lack of competency as revealed by the Statement of Bidder's Qualifications.

f. Uncompleted work which, in the judgment of the Owner, will hinder or prevent the prompt completion of additional work, if awarded.

g. Previous projects where, in the judgment of the Owner, the Bidder performed unsatisfactorily and did not complete and close out the project in a timely manner resulting in the Owner not being able to close out the project with various funding agencies and resulting in the Owner potentially or actually losing planned funding for other projects.

END OF SECTION 20

SECTION 30

AWARD AND EXECUTION OF CONTRACT

30-01 CONSIDERATION OF PROPOSALS. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in the subsection titled IRREGULAR PROPOSALS of Section 20.

b. If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Section 20.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 AWARD OF CONTRACT. The award of a contract, if it is to be awarded, shall be made within ~~60~~ 90 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

Award of the contract shall be made by the Owner to the lowest, qualified bidder whose proposal conforms to the cited requirements of the Owner.

30-03 CANCELLATION OF AWARD. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the subsection titled APPROVAL OF CONTRACT of this section.

30-04 RETURN OF PROPOSAL GUARANTY. All proposal guaranties, except those of the ~~two lowest bidders~~ three (3) lowest bidders, will be returned immediately after the Owner has made a comparison of bids as hereinbefore specified in the subsection titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the ~~two~~ three lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidders proposal guaranties will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contracts bonds as specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section.

30-05 REQUIREMENTS OF CONTRACT BONDS. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 EXECUTION OF CONTRACT. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return such signed contract to the owner, along with the

fully executed surety bond or bonds specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section, within ~~45~~ 20 calendar days from the date mailed or otherwise delivered to the successful bidder. If the contract is mailed, special handling is recommended.

The contract executed by the successful bidder shall have within the body of the contract the following language that documents the following assurances:

“The contractor, sub-recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.”

30-07 APPROVAL OF CONTRACT. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 FAILURE TO EXECUTE CONTRACT. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the ~~45~~ 20 calendar day period specified in the subsection titled REQUIREMENTS OF CONTRACT BONDS of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

END OF SECTION 30

SECTION 40

SCOPE OF WORK

40-01 INTENT OF CONTRACT. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, ~~and supplies and incidentals~~ required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 ALTERATION OF WORK AND QUANTITIES. The Owner reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded contract quantities, provided that the aggregate of such alterations does not change the total contract cost or the total cost of any major contract item by more than 25 percent (total cost being based on the unit prices and estimated quantities in the awarded contract). Alterations that do not exceed the 25 percent limitation shall not invalidate the contract nor release the surety, and the Contractor agrees to accept payment for such alterations as if the altered work had been a part of the original contract. These alterations that are for work within the general scope of the contract shall be covered by "Change Orders" issued by the Engineer. Change orders for altered work shall include extensions of contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25 percent limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

For AIP contracts, all supplemental agreements shall be approved by the FAA and shall include valid wage determinations of the U.S. Secretary of Labor when the amount of the supplemental agreement exceeds \$2,000. However, if the Contractor elects to waive the limitations on work that increases or decreases the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same U.S. Secretary of Labor wage determination as was included in the originally awarded contract.

All supplemental agreements shall require consent of the Contractor's surety and separate performance and payment bonds.

40-03 OMITTED ITEMS. The Engineer may, in the Owner's best interest, omit from the work any contract item, except major contract items. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be nonperformed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with the subsection titled PAYMENT FOR OMITTED ITEMS of Section 90.

40-04 EXTRA WORK. Should acceptable completion of the contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original contract or previously issued change orders or supplemental agreements, the same shall be called "Extra Work." Extra Work

that is within the general scope of the contract shall be covered by written change order. Change orders for such Extra Work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the Engineer's opinion, is necessary for completion of such Extra Work.

When determined by the Engineer to be in the Owner's best interest, he may order the Contractor to proceed with Extra Work by force account as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Section 90.

Extra Work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a Supplemental Agreement as hereinbefore defined in the subsection titled SUPPLEMENTAL AGREEMENT of Section 10.

Any claim for payment of Extra Work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 MAINTENANCE OF TRAFFIC. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors as specified in the subsection titled LIMITATION OF OPERATIONS of Section 80. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in the subsection titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

With respect to his/her own operations and the operations of all his/her subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport.

When the contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall furnish, erect, and maintain barricades, warning signs, flagperson(s), and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office), unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

The Contractor shall make his/her own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of aircraft and vehicular traffic as specified in this subsection.

The cost of maintaining the aircraft and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be included in the various contract items.

40-06 REMOVAL OF EXISTING STRUCTURES. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place,

reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the contract.

Except as provided in the subsection titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be utilized in the work as otherwise provided for in the contract and shall remain the property of the Owner when so utilized in the work.

40-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be either embankment or waste, he may at his/her option either:

- a. Use such material in another contract item, providing such use is approved by the Engineer and is in conformance with the contract specifications applicable to such use; or,
- b. Remove such material from the site, upon written approval of the Engineer; or
- c. Use such material for his/her own temporary construction on site; or,
- d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., he shall request the Engineer's approval in advance of such use.

Should the Engineer approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at his/her own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for his/her use of such material so used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his/her exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-09 FINAL CLEANING UP. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. He shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property owner.

END OF SECTION 40

SECTION 50

CONTROL OF WORK

50-01 AUTHORITY OF THE ENGINEER. The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. The Engineer shall decide all questions that may arise as to the interpretation of the specifications or plans relating to the work. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the contract.

The Engineer does not have the authority to accept pavements that do not conform to FAA specification requirements.

50-02 CONFORMITY WITH PLANS AND SPECIFICATIONS. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans or specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his/her opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, he will advise the Owner of his/her determination that the affected work be accepted and remain in place. In this event, the Engineer will document his/her determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. The Engineer's determination and recommended contract price adjustments will be based on good engineering judgment and such tests or retests of the affected work as are, in his/her opinion, needed. Changes in the contract price shall be covered by contract modifications (change order or supplemental agreement) as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the Engineer's written orders.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the Engineer's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's prosecution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority, after consultation with the FAA, to use good engineering judgment in his/her determinations as to acceptance of work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the contract, plans and specifications.

All defined tolerances shall apply before, during and after incorporation of the materials into the work. It is the intent of the specifications that all materials meet all of the requirements of the specifications after all material has been set in place in its final form.

The Owner shall keep the FAA advised of the Engineer's determinations as to acceptance of the work that is not in reasonably close conformity with the contract, plans, and specifications. Change orders or supplemental agreements must bear the written approval of the FAA.

The Engineer will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 COORDINATION OF CONTRACT, PLANS, AND SPECIFICATIONS. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited FAA advisory circulars; contract general provisions shall govern over plans, cited standards for materials or testing, and cited FAA advisory circulars; plans shall govern over cited standards for materials or testing and cited FAA advisory circulars. If any paragraphs contained in the Special Provisions Conditions conflict with General Provisions or Technical Specifications, the Special Provisions Conditions shall govern.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call upon the Engineer for his/her interpretation and decision, and such decision shall be final.

~~LIST SPECIAL PROVISIONS~~

50-04 COOPERATION OF CONTRACTOR. The Contractor will be supplied with five copies each of the plans and specifications. He shall have available on the work at all times one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Engineer and his/her inspectors and with other contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as his/her agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Engineer or his/her authorized representative.

50-05 COOPERATION BETWEEN CONTRACTORS. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his/her work so as not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his/her contract and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his/her work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his/her work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-06 CONSTRUCTION LAYOUT AND STAKES. ~~The Engineer shall establish horizontal and vertical control only. The Contractor must establish all layout required for the construction of the work. Such stakes and markings as the Engineer may set for either his/her own or the Contractor's guidance shall be preserved by the Contractor. In case of negligence on the part of the Contractor, or his/her employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due the Contractor at the discretion of the Engineer.~~ The Contractor shall furnish, as his expense, all horizontal and vertical control, all staking and layout of construction work called for on the plans and in accordance with Technical Specification P-104, Project Survey and Stakeout and as more stringently required herein. The Engineer and Owner shall not be responsible for such work. However, the Owner and Engineer reserve the right to check all said lines, grades, and measurements with their appointed surveyor(s). Should the Owner's surveyor(s) detect errors in said lines, grades, and measurements, the Contractor shall pay for all said surveying costs and subsequent surveying costs performed to verify correction of errors found in said lines, grades, and measurements. Included in this are all blue top staking for subgrade and base course installation. Definition of an error shall be 1/4" or more. In the case of a discrepancy between the technical specifications and this defined tolerance, the more stringent tolerance shall govern.

~~The Contractor will be required to furnish all lines, grades and measurements from the control points necessary for the proper prosecution and control of the work contracted for under these specifications.~~

The Contractor must give weekly copies of the survey notes to the Engineer so that the Engineer may check them as to accuracy and method of staking. All areas that are staked by the Contractor must be checked by the Engineer prior to beginning any work in the area. The Engineer will make periodic checks of the grades and alignment set by the Contractor. In case of error on the part of the Contractor, or his/her employees, resulting in establishing grades and/or alignment that are not in accordance with the plans or established by the Engineer, all construction not in accordance with the established grades and/or alignment shall be replaced without additional cost to the Owner.

~~No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses therewith. The cost thereof shall be included in the price of the bid for the various items of the Contract.~~

Construction Staking and Layout includes but is not limited to:

Clearing and Grubbing perimeter staking.

Rough Grade slope stakes at 100-foot stations.

Drainage Swales slope stakes and flow line blue tops at 50-foot stations.

Subgrade blue tops at 25-foot stations and 25-foot offset distance (max.) for the following section locations:

- a. Runway – minimum 5 per station
- b. Taxiways – minimum 3 per station
- c. Holding apron areas – minimum 3 per station
- d. Roadways – minimum 3 per station

Base Course blue tops at 25-foot stations and 25-foot offset distance (max.) for the following section locations:

- a. Runway – minimum 5 per station
- b. Taxiways – minimum 3 per station
- c. Holding apron areas – minimum 3 per station

Pavement areas:

- a. Edge of Pavement hubs and tacks (for stringline by Contractor) at 100-foot stations
- b. Between Lifts at 25-foot stations for the following section locations:
 - (1) Runways – each paving lane width
 - (2) Taxiways – each paving lane width
 - (3) Holding areas – each paving lane width
- c. After finish paving operations at 50-foot stations
 - (1) All paved areas – Edge of each paving lane prior to next paving lot
- d. Shoulder and safety area blue tops at 50-foot stations and at all break points with maximum of 50-foot offsets

Fence lines at 100 foot stations

Electrical and Communications System locations, lines and grades including but not limited to duct runs, connections, fixtures, signs, lights, VASI's, PAPI's, REIL's, Wind Cones, Distance Markers (signs), pull boxes and manholes.

Drain lines, cut stakes and alignment on 25-foot stations, inlet and manholes.

Painting and Striping layout (pinned with 1.5-inch PK nails) marked for paint Contractor. (All nails shall be removed after painting).

Laser, or other automatic control devices, shall be checked with temporary control point or grade hub at a minimum of once per 400 feet per pass (i.e. paving lane).

NOTE: Controls and stakes disturbed or suspect of having been disturbed shall be checked and/or reset as directed by the Engineer without additional cost to the Owner.

50-07 AUTOMATICALLY CONTROLLED EQUIPMENT. Whenever batching or mixing plant equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period of 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the contract.

50-08 AUTHORITY AND DUTIES OF INSPECTORS. Inspectors employed by the Owner shall be authorized to inspect all work done and all material furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the Owner are authorized to notify the Contractor or his/her representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for his/her decision.

50-09 INSPECTION OF THE WORK. All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or

making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the Owner may be ordered removed and replaced at the Contractor's expense unless the Owner's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

The Engineer and/or his authorized representative shall have full authority to inspect all materials on the project site, test all materials at as many locations and at any frequency he deems necessary to satisfy himself that the final in-place product meets the requirements of the plans and specifications.

50-10 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the Engineer as provided in the subsection titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of the subsection titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Section 70.

~~No removal work made under provision of this subsection shall be done without lines and grades having been given by the Engineer.~~ Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as given, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed and to deduct the costs (incurred by the Owner) from any monies due or to become due the Contractor.

50-11 LOAD RESTRICTIONS. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his/her hauling equipment and shall correct such damage at his/her own expense.

50-12 MAINTENANCE DURING CONSTRUCTION. The Contractor shall maintain the work during construction and until the work is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 FAILURE TO MAINTAIN THE WORK. Should the Contractor at any time fail to maintain the work as provided in the subsection titled MAINTENANCE DURING CONSTRUCTION of this section, the Engineer shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the Engineer's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be deducted from monies due or to become due the Contractor.

50-14 PARTIAL ACCEPTANCE. If at any time during the prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, he may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, he may accept it as being completed, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract. Partial acceptance of any part of the work shall not constitute acceptance form a warranty standpoint. The warranty for any work completed and accepted shall not begin until the entire project is complete and accepted by the Owner.

50-15 FINAL ACCEPTANCE. ~~Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer and Owner will make an inspection.~~ Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer, Owner and representative of the Federal Aviation Administration and/or State funding agency will make an inspection. Final acceptance of the project shall not occur until the FAA and/or State funding agency representative(s) have made their inspection and the FAA and State funding agency has accepted the project. If all construction provided for and contemplated by the contract is found to be completed in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the Engineer will make the recommendation for final acceptance and notify the Contractor in writing of the Owner's this acceptance as of the date of final inspection.

50-16 CLAIMS FOR ADJUSTMENT AND DISPUTES. If for any reason the Contractor deems that additional compensation is due him for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer in writing of his/her intention to claim such additional compensation before he begins the work on which he bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the Engineer has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been

completed, the Contractor shall, within ~~ten (10)~~ calendar days, submit his/her written claim to the Engineer who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

~~50-17 COST REDUCTION INCENTIVE.~~ ~~The provisions of this subsection will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.~~

~~On projects with original contract amounts in excess of \$100,000, the Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the cost of construction. The cost reduction proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.~~

~~Not eligible for cost reduction proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.~~

~~As a minimum, the following information shall be submitted by the Contractor with each proposal:~~

~~a. A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each;~~

~~b. An itemization of the contract requirements that must be changed if the proposal is adopted;~~

~~c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes;~~

~~d. A statement of the time by which a change order adopting the proposal must be issued;~~

~~e. A statement of the effect adoption of the proposal will have on the time for completion of the contract; and~~

~~f. The contract items of work affected by the proposed changes, including any quantity variation attributable to them.~~

~~The Contractor may withdraw, in whole or in part, any cost reduction proposal not accepted by the Engineer, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the Engineer to consider any cost reduction proposal that may be submitted.~~

~~The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the cost reduction proposal has been issued. If a change order has not been issued by the date upon which the Contractor's cost reduction proposal specifies that a decision should be made, or such other date as the Contractor may subsequently have requested in writing, such cost reduction proposal shall be deemed rejected.~~

~~The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the Engineer may disregard the contract bid prices if, in the Engineer's judgment, such prices do not represent a fair measure of the value of the work to be performed or deleted.~~

~~The Owner may require the Contractor to share in the Owner's costs of investigating a cost reduction proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a cost reduction proposal from amounts payable to the Contractor under the contract.~~

~~If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by a contract change order that shall specifically state that it is executed pursuant to this subsection. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted and shall include any conditions upon which the Engineer's approval is based. The change order shall also set forth the estimated net savings attributable to the cost reduction proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.~~

~~The Contractor's 50 percent share of the net savings shall constitute full compensation to the Contractor for the cost reduction proposal and the performance of the work.~~

~~Acceptance of the cost reduction proposal and performance of the cost reduction work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.~~

END OF SECTION 50

SECTION 60

CONTROL OF MATERIALS

60-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The materials used on the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the Engineer as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Engineer's option, materials may be approved at the source of supply before delivery is stated. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that conforms to the requirements of cited materials specifications. In addition, where an FAA specification for airport lighting equipment is cited in the plans or specifications, the Contractor shall furnish such equipment that is:

a. Listed in FAA Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, that is in effect on the date of advertisement; and,

b. Produced by the manufacturer qualified (by FAA) to produce such specified and listed equipment.

~~The following airport lighting equipment is required for this contract and is to be furnished by the Contractor in accordance with the requirements of this subsection:~~

~~EQUIPMENT NAME~~

~~CITED FAA SPECIFICATIONS~~

~~EFFECTIVE FAA AC OR APPROVAL LETTER FOR EQUIPMENT AND
MANUFACTURER~~

60-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS. Unless otherwise designated, all materials used in the work shall be inspected, tested, and approved by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense. Unless otherwise designated, tests in accordance with the cited standard methods of ASTM, AASHTO, Federal Specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids, will be made by and at the expense of the ~~Engineer~~ Owner. The testing organizations performing on site field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel, including the Contractor's representative at his/her request. Unless otherwise designated, samples will be taken by a qualified representative of the ~~Engineer~~ Owner. All materials being used are subject to inspection, test, or rejection at any time prior to, or during or after incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at his/her request.

~~The Contractor shall employ a testing organization to perform all Contractor required tests. The Contractor shall submit to the Engineer resumes on all testing organizations and individual persons who will be performing the tests. The Engineer will determine if such persons are qualified. All the test data shall be reported to the Engineer after the results are known. A legible, handwritten copy of all test data~~

~~shall be given to the Engineer daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the Engineer showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.~~

The Owner shall pay for all passing tests. The Contractor shall pay for all failing tests. Charges for failing tests will be deducted from the Contractor's earnings at the end of the project at the time of final payment. The Contractor shall furnish, at his own expense, all necessary specimens for testing of the materials, as required by the Engineer or his authorized representative. The Contractor shall be responsible for notifying the Owner authorized testing laboratory to pick up the test samples. Also, the Engineer reserves the right to test at any location on the project, and at any frequency he deems necessary before, during and after incorporation of all materials into the project to satisfy himself and insure that all materials meet the specified requirements. All materials utilized in the project must meet specification requirements before, during and after incorporation into the project.

60-03 CERTIFICATION OF COMPLIANCE. The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

- a. Conformance to the specified performance, testing, quality or dimensional requirements; and,
- b. Suitability of the material or assembly for the use intended in the contract work.

Should the Contractor propose to furnish an "or equal" material or assembly, he shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The Engineer reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 PLANT INSPECTION. The Engineer or his/her authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his/her acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

- a. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.
- b. The Engineer shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.
- c. If required by the Engineer, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 ENGINEER'S FIELD OFFICE. ~~The Contractor shall furnish for the duration of the project one building for the use of the field engineers and inspectors, as a field office. This facility shall be an approved weatherproof building meeting the current State Highway Specifications (for example, Class I Field Office or Type C Structure). This building shall be located conveniently near to the construction and shall be separate from any building used by the Contractor. A land line telephone and answering machine shall be provided. The Contractor shall be responsible for payment of the basic monthly charge and local calls only. Any Long Distance Tolls shall be the responsibility of the caller. The Contractor shall furnish [FAX machine, photocopy machine, water, sanitary facilities, heat, air conditioning, and electricity]. No direct payment will be made for this building or labor, materials, ground rental, or other expense in connection therewith. The cost hereof shall be included in the price bid for the various items of the contract. The Contractor and his/her superintendent shall provide all reasonable facilities to enable the Engineer to inspect the workmanship and materials entering into the work.~~

60-06 STORAGE OF MATERIALS. Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer a copy of the property owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at his/her entire expense, except as otherwise agreed to (in writing) by the owner or lessee of the property.

60-07 UNACCEPTABLE MATERIALS. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the Engineer has approved its used in the work.

60-08 OWNER FURNISHED MATERIALS. The Contractor shall furnish all materials required to complete the work, except those specified herein (if any) to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified herein.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

SECTION 70

LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 LAWS TO BE OBSERVED. The Contractor shall keep fully informed of all Federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. He/she shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all his/her officers, agents, Engineer or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his/her employees.

70-02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

70-03 PATENTED DEVICES, MATERIALS, AND PROCESSES. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Owner, Engineer any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner and Engineer for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work. Also, the Contractor shall be required to include the Owner and Engineer as additional insureds on his insurance policies to protect the Owner and Engineer against all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright and any costs, expenses, and damages which it may be obliged to pay by reason of an infringement.

70-04 RESTORATION OF SURFACES DISTURBED BY OTHERS. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) is indicated as follows:

~~Owner (Utility or Other Facility)~~
~~Location (See Plan Sheet No.)~~
~~Person to Contact (Name, Title, Address and Phone)~~

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer.

Should the owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such owners by arranging and performing the work in this contract so as to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed

that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 FEDERAL AID PARTICIPATION. For AIP contracts, the United States Government has agreed to reimburse the Owner for some portion of the contract costs. Such reimbursement is made from time to time upon the Owner's request to the FAA. In consideration of the United States Government's (FAA's) agreement with the Owner, the Owner has included provisions in this contract pursuant to the requirements of Title 49 of the United States Code (USC) and the Rules and Regulations of the FAA that pertain to the work.

As required by the USC, the contract work is subject to the inspection and approval of duly authorized representatives of the Administrator, FAA, and is further subject to those provisions of the rules and regulations that are cited in the contract, plans, or specifications.

No requirement of the USC, the rules and regulations implementing the USC, or this contract shall be construed as making the Federal Government a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 SANITARY, HEALTH, AND SAFETY PROVISIONS. The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his/her employees as may be necessary to comply with the requirements of the state and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, state, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous to his/her health or safety.

70-07 PUBLIC CONVENIENCE AND SAFETY. The Contractor shall control his/her operations and those of his/her subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to his/her own operations and those of his/her subcontractors and all suppliers in accordance with the subsection titled MAINTENANCE OF TRAFFIC of Section 40 hereinbefore specified and shall limit such operations for the convenience and safety of the traveling public as specified in the subsection titled LIMITATION OF OPERATIONS of Section 80 hereinafter.

70-08 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS. The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated. Unless otherwise specified, barricades, warning signs, and markings for hazards that are in the air operations area shall be a maximum of 18-inches high. Unless otherwise specified, barricades shall be spaced not more than 25-feet apart. Barricades, warning signs, and markings shall be paid for under Section 40-05. This shall include any specialty barricades, warning signs, markings, lighted runway closure markers, etc.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

When the work requires closing an air operations area of the airport or portion of such area, the Contractor shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of AC 150/5340-1, Standards for Airport Markings, latest change.

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stock piles, and his/her parked construction equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the airport in reasonable conformance to AC 150/5370-2, Operational Safety on Airports During Construction, latest change .

The Contractor shall identify each motorized vehicle or piece of construction equipment in reasonable conformance to AC 150/5370-2, latest change.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work that requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer.

Open-flame type lights shall not be permitted within the air operations areas of the airport.

70-09 USE OF EXPLOSIVES. ~~When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.~~

~~All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and, in general, not closer than 1,000 feet (300 m) from the work or from any building, road, or other place of human occupancy.~~

~~The Contractor shall notify each property owner and public utility company having structures or facilities in proximity to the site of the work of his/her intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.~~

~~The use of electrical blasting caps shall not be permitted on or within 1,000 feet (300 m) of the airport property.~~

Explosives are prohibited on the Airport and will not be used for this project.

70-10 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his/her manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, he shall restore, at his/her own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner.

70-11 RESPONSIBILITY FOR DAMAGE CLAIMS. The Contractor shall be required to include the Owner and Engineer as additional insureds on his insurance policies to protect the Owner and Engineer ~~The Contractor shall indemnify and save harmless the Engineer and the Owner and their officers, and~~

employees from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of his/her contract as may be considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, his/her surety may be held until such suit(s), action(s), or claim(s) for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he is adequately protected by public liability and property damage insurance.

70-12 THIRD PARTY BENEFICIARY CLAUSE. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 OPENING SECTIONS OF THE WORK TO TRAFFIC. Should it be necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work shall be specified herein and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his/her own estimate of the difficulties involved in arranging his/her work to permit such beneficial occupancy by the Owner as described below:

Phase or Description
Required Date or Sequence of Owner's Beneficial Occupancy
Work Shown on Plan Sheet

Upon completion of any portion of the work listed above, such portion shall be accepted by the Owner in accordance with the subsection titled PARTIAL ACCEPTANCE of Section 50.

No portion of the work may be opened by the Contractor for public use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to public traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at his/her expense.

The Contractor shall make his/her own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

Contractor shall be required to conform to safety standards contained in FAA AC 150/5370-2, Operational Safety on Airports During Construction, latest change. ~~(See Special Provisions.)~~

Contractor shall refer to the approved safety plan and associated phasing plans to identify barricade requirements and other safety requirements prior to opening up sections of work to traffic.

70-14 CONTRACTOR'S RESPONSIBILITY FOR WORK. Until the Engineer's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with the subsection titled PARTIAL ACCEPTANCE of Section 50, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at his/her expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seedings, and soddings furnished under his/her contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS.

As provided in the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his/her operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and the owners are indicated as follows:

~~Utility Service or Facility~~

~~Person to Contact (Name, Title, Address, & Phone)~~

~~Owner's Emergency Contact (Phone)~~

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of his/her responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the owners of all utility services or other facilities of his/her plan of operations. Such notification shall be in writing addressed to THE PERSON TO CONTACT as provided hereinbefore in this subsection and the subsection titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this section. A copy of each notification shall be given to the Engineer.

In addition to the general written notification hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his/her plan of operations that would affect such owners.

Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such owner of his/her plan of operation. If, in the Contractor's opinion, the owner's

assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's PERSON TO CONTACT no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

The Contractor's failure to give the two day's notice hereinabove provided shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer within 3-feet (90 cm) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, he shall immediately notify the proper authority and the Engineer and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to his/her operations whether or not due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his/her surety.

70-15.1 FAA FACILITIES AND CABLE RUNS. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the prosecution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall notify the above named FAA Airway Facilities Point-of-Contact seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If prosecution of the project work requires a facility outage, the Contractor shall contact the above named FAA Point-of-Contact a minimum of 48 hours prior to the time of the required outage.

d. If prosecution of the project work results in damages to existing FAA equipment or cables, the Contractor shall repair the damaged item in conformance with FAA Airway Facilities' standards to the satisfaction of the above named FAA Point-of-Contact.

e. If the project work requires the cutting or splicing of FAA owned cables, the above named FAA Point-of-Contact shall be contacted a minimum of 48 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA Airway Facilities representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA Airway Facilities' specifications and require approval by the above named FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA Airway Facilities restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA Airway Facilities, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

70-16 FURNISHING RIGHTS-OF-WAY. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 PERSONAL LIABILITY OF PUBLIC OFFICIALS. In carrying out any of the contract provisions or in exercising any power or authority granted to him by this contract, there shall be no liability upon the Engineer, his/her authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 NO WAIVER OF LEGAL RIGHTS. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or his/her surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his/her obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 ENVIRONMENTAL PROTECTION. The Contractor shall comply with all Federal, state, and local laws and regulations controlling pollution of the environment. He/she shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 ARCHAEOLOGICAL AND HISTORICAL FINDINGS. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his/her operations, any building, part of a building, structure, or object that is incongruous with its surroundings, he shall immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume his/her operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract modification (change order or supplemental agreement) as provided in the subsection titled EXTRA WORK of Section 40 and the subsection titled PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT WORK of Section 90. If appropriate, the contract modification shall include an extension of contract time in accordance with the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Section 80.

END OF SECTION 70

SECTION 80

PROSECUTION AND PROGRESS

80-01 SUBLETTING OF CONTRACT. The Owner and Engineer will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative(s) who is duly authorized to receive and execute orders of the Engineer.

Should the Contractor elect to assign his/her contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner. In case of approval, the Contractor shall file copies of all subcontracts with the Engineer.

The Contractor shall perform, with his organization, an amount of work equal to at least [40] percent of the total contract cost.

80-02 NOTICE TO PROCEED. ~~The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date contract time will be charged. The Contractor shall begin the work to be performed under the contract within 10 days of the date set by the Engineer in the written notice to proceed, but in any event, the Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin.~~

The Notice to Proceed shall be issued by the Owner.

The Contractor shall begin the work to be performed under the contract within not less than five (5) days nor more than ten (10) calendar days of the date set by the Owner in the written notice to proceed, but in any event, the Contractor shall notify the Owner and Engineer at least 48 hours in advance of the time actual construction operations will begin.

80-03 PROSECUTION AND PROGRESS. Unless otherwise specified, the Contractor shall submit his/her progress schedule for the Engineer's approval within 10 calendar days after the effective date of the notice to proceed. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the contract time and modify his/her operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. ~~Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.~~ Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Owner and Engineer at least 48 hours in advance of resuming operations.

For AIP contracts, the Contractor shall not commence any actual construction prior to the date on which the notice to proceed is issued by the Owner.

80-04 LIMITATION OF OPERATIONS. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the AIR OPERATIONS AREAS of the airport.

When the work requires the Contractor to conduct his/her operations within an AIR OPERATIONS AREA of the airport, the work shall be coordinated with airport operations (through the Engineer) at least 48 hours prior to commencement of such work. The Contractor shall not close an AIR OPERATIONS AREA until so authorized by the Engineer and until the necessary temporary marking and associated lighting is in place as provided in the subsection titled BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS of Section 70.

When the contract work requires the Contractor to work within an AIR OPERATIONS AREA (AOA) of the airport on an intermittent basis (intermittent opening and closing of the AIR OPERATIONS AREA), the Contractor shall maintain constant communications as hereinafter specified; immediately obey all instructions to vacate the AIR OPERATIONS AREA; immediately obey all instructions to resume work in such AIR OPERATIONS AREA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AIR OPERATIONS AREA until the satisfactory conditions are provided. The following AIR OPERATIONS AREA cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

AOA

~~TIME PERIODS AOA CAN BE CLOSED~~

~~TYPE OF COMMUNICATIONS REQUIRED WHEN WORKING IN AN AOA~~

~~CONTROL AUTHORITY~~

Contractor shall be required to conform to safety standards contained AC 150/5370-2, Operational Safety on Airports During Construction, latest change. ~~(See Special Provisions.)~~

80-04.1 OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION. All Contractors' operations shall be conducted in accordance with the project safety plan and the provisions set forth within the current version of Advisory Circular 150/5370-2. The safety plan included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a plan that details how it proposes to comply with the requirements presented within the safety plan.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks of the safety plan measures to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the safety plan and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved safety plan unless approved in writing by the Owner or Engineer.

80-05 CHARACTER OF WORKERS, METHODS, AND EQUIPMENT. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations and, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the

Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the Engineer.

Should the Contractor fail to remove such persons or person, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

In addition, the following requirements shall apply concerning all workers utilized on the project:

a. The Contractor shall provide and maintain, continually on the project site of the work during its progress, adequate and competent superintendence of all operations for and in connection with the work. The Contractor shall provide a capable superintendent acceptable to the Owner. Such representative shall be able to read, write and speak English fluently and shall be authorized to receive instructions from the Engineer or his authorized representative. Said superintendent shall have authority to see that the work is carried out in accordance with the Contract Documents and in a first class, thorough and workmanlike manner in every respect.

b. Incompetent, disorderly, intemperate or incorrigible employees shall be dismissed from the project by the Contractor or his representative when requested by the Engineer or the Owner, and such persons shall not again be permitted to return to the work without the written consent of the Owner.

c. The Contractor agrees to indemnify and hold the Owner and Engineer harmless from any and all loss or damages arising out of jurisdictional labor disputes or other labor troubles of any kind that may occur during the construction and performance of the Contract.

d. The Contractor shall provide at the request of the Owner such reasonable information about his employees as may be necessary, including in part, name, address and social security number.

e. Any employee of the Contractor or any subcontractors who violate the badging requirements or leaves unbadged individuals in the Airport Operations Area (AOA) or the Secured Identification Display Area (SIDA) without properly badged individuals will be removed from the Airport and not allowed back onto the Airport without prior approval by the Owner.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing airport facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of

payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this subsection.

80-06 TEMPORARY SUSPENSION OF THE WORK. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his/her claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Owner, or for any other delay provided for in the contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 DETERMINATION AND EXTENSION OF CONTRACT TIME. The number of calendar ~~or working~~ days allowed for completion of the work shall be stated in the proposal and contract and shall be known as the CONTRACT TIME.

Should the contract time require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

~~a. CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his/her weekly statement of the number of working days charged against the contract time during the week and the number of working days currently specified for completion of the contract (the original contract time plus the number of working days, if any, that have been included in approved CHANGE ORDERS or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).~~

The Engineer shall base his/her weekly statement of contract time charged on the following considerations:

(1) No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least 6 hours with the normal work force employed on such principal item except where specific defined project elements, phases, etc. establishes a shorter time frame due to operational constraints of the airport. Should the normal work force be on a double-shift, 12 hours shall be used. Should the normal work force be on a triple-shift, 18 hours shall apply. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Owner for reasons not the fault of the Contractor, shall not be charged against the contract time.

(2) The Engineer will not make charges against the contract time prior to the effective date of the notice to proceed.

(3) The Engineer will begin charges against the contract time ~~on the first working day after the effective date of the notice to proceed.~~ not less than five (5) calendar days nor more than ten (10) calendar days after the receipt of the notice to proceed as evidenced by the date of receipt shown on the certified mail return receipt.

(4) The Engineer will not make charges against the contract time after the date of final acceptance as defined in the subsection titled FINAL ACCEPTANCE of Section 50.

(5) The Contractor will be allowed 1 week in which to file a written protest setting forth his/her objections to the Engineer's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.

~~The contract time (stated in the proposal) is based on the originally estimated quantities as described in the subsection titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Section 20. Should the satisfactory completion of the contract require performance of work in greater quantities than those estimated in the proposal, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in contract time shall not consider either the cost of work or the extension of contract time that has been covered by change order or supplemental agreement and shall be made at the time of final payment.~~

b. CONTRACT TIME based on CALENDAR DAYS ~~or NIGHTS~~ shall consist of the number of calendar days ~~or nights~~ stated in the contract counting from the effective date of the notice to proceed and including all Saturdays, Sundays, holidays, and nonwork days. All calendar days ~~or nights~~ elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

~~At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.~~

c. When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially completed.

If the Contractor finds it impossible for reasons beyond his/her control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the contract time as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his/her request. Requests for extension of time on calendar day projects, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded which could normally be expected during the contract period. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

80-08 FAILURE TO COMPLETE ON TIME. For each calendar day ~~or working day~~, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and

adjustments as provided in the subsection titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Section) the sum specified in the contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his/her surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in his/her contract.

SCHEDULE	LIQUIDATED DAMAGES COST	ALLOWED CONSTRUCTION TIME
All	\$3,000	Per Work Scope Section 01014

~~The maximum construction time allowed for Schedules [] will be the sum of the time allowed for individual schedules but not more than [] days. (Note: this paragraph will be modified for each project.)~~

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its rights under the contract.

80-09 DEFAULT AND TERMINATION OF CONTRACT. The Contractor shall be considered in default of his/her contract and such default will be considered as cause for the Owner to terminate the contract for any of the following, but not limited to, reasons:

- a. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or
- b. Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the contract, or
- c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
- d. Discontinues the prosecution of the work, or
- e. Fails to resume work which has been discontinued after notice to do so, or
- f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
- g. Allows any final judgment to stand against him unsatisfied, or
- h. Makes an assignment for the benefit of creditors, or
- i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Engineer consider the Contractor in default of the contract for any reason hereinbefore, he shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, does not proceed in accordance with the notice, then the Owner will, upon written notification from the Engineer of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or

use such other methods as in the opinion of the Engineer 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 contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 TERMINATION FOR NATIONAL EMERGENCIES. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the Engineer.

Termination of the contract or a portion thereof shall neither relieve the Contractor of his/her responsibilities for the completed work nor shall it relieve his/her surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS. The Contractor shall obtain approval from the ~~Engineer~~ Owner prior to beginning any work in all areas of the airport. No operating runway, taxiway, or Air Operations Area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate his/her work in such a manner as to insure safety and a minimum of hindrance to flight operations. ~~All Contractor equipment and material stockpiles shall be stored a minimum of [] feet from the centerline of an active runway. No equipment will be allowed to park within the approach area of an active runway at any time. No equipment shall be within [] feet of an active runway at any time.~~

END OF SECTION 80

SECTION 90

MEASUREMENT AND PAYMENT

90-01 MEASUREMENT OF QUANTITIES. All work completed under the contract will be measured by the Engineer, or his/her authorized representatives, using United States Customary Units of Measurement or the International System of Units.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meter) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation the average end area method or other acceptable methods will be used.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds (907 kilograms) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designed by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear a plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the Engineer in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon (liter) or ton (kilogram). When measured by volume, such volumes will be measured at 60 F (15 C) or will be corrected to the volume at 60 F (15 C) using ASTM D 1250 for asphalts or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Cement will be measured by the ton (kilogram) or hundredweight (kilogram).

Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the subsection titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1 percent of the nominal rated capacity of the scale, but not less than 1 pound (454 grams). The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

Scale installations shall have available ten standard 50-pound (2.3 kilogram) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of one-half of 1 percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 SCOPE OF PAYMENT. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of the subsection titled NO WAIVER OF LEGAL RIGHTS of Section 70.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 COMPENSATION FOR ALTERED QUANTITIES. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the subsection titled ALTERATION OF WORK AND QUANTITIES of Section 40 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his/her unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 PAYMENT FOR OMITTED ITEMS. As specified in the subsection titled OMITTED ITEMS of Section 40, the Engineer shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the Engineer omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the Engineer's order to omit or nonperform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the Engineer's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the Engineer's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature and the amount of such costs.

90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. Extra work, performed in accordance with the subsection titled EXTRA WORK of Section 40, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work. When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus ~~a negotiated and agreed upon~~ an allowance for overhead and profit determined as follows:

a. Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

b. Comparison of Record. The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.

c. Statement. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:

(1) Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman including supplemental benefits, payroll taxes, insurance premiums and other reasonable charges that are paid by the Contractor pursuant to existing written agreements with employees and/or labor organizations.

(2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

For Contractor self-owned equipment, the maximum rate paid for equipment will be determined based upon the following factors:

(i) The base hourly rates shall be the daily rate as listed in the current Rental Rates for Construction Equipment prepared by Associated Equipment Distributors latest edition, divided by eight (8). Where no daily rate is listed, the daily rate will be determined by dividing the monthly rate by 10.

(ii) The first 20 hours will be paid at 90 percent of the above based hourly rate. For 21 to 40 hours, the rate will be 80 percent of the above base hourly rate. For over 40 hours, the rate will be 45 percent of the above base hourly rate.

(iii) The number of hours to be paid for shall be the number of hours that the equipment or plant is actually used on a specified force account job.

(iv) For rented equipment, such equipment will be paid for based upon rental cost as approved by the Engineer. Invoices showing rental charges must be submitted to the Engineer for such payment.

(v) For use of all equipment when, in the opinion of the Contractor and as approved by the Engineer, suitable equipment is not available on the site, the movement of required equipment to and from the site will be paid for at actual cost.

(vi) Equipment to be used by the Contractor shall be specifically described and be of suitable size and suitable capacity required for the work to be performed. In the event the Contractor elects to use equipment of a higher rental value than that suitable for the work, payment will be made at the rate applicable to the suitable equipment. The equipment actually used and the suitable equipment paid for will be recorded as part of the record for force account work. The Engineer shall determine the

suitability of the equipment. If there is a differential in the rate of pay of the operator of oversize or higher rate equipment, the rate paid for the operator will likewise be that for the suitable equipment.

(vii) In the event that a rate is not established in the Associated Equipment Distributors Rental Rates, latest edition, for a particular piece of equipment or plant, the Owner shall establish a rate for that piece of equipment or plant that is consistent with its cost and use.

(3) Quantities of materials, prices, and extensions.

(4) Transportation of materials to the site.

(5) Cost of property damage, liability and workman's compensation insurance premiums, unemployment insurance contributions, and social security tax.

(6) Profit and Overhead. Profit and overhead amount shall be computed at fifteen (15) percent of the following:

(i) Total Direct Labor Cost (actual hours worked multiplied by the basic hourly wage rate) plus supplemental benefits payments, payroll taxes, insurance payments and other labor related fringe benefit payments as defined in (1) above, but not including the overtime additive payments. Profit and overhead shall not be paid on the premium portion of overtime.

(ii) Total Cost of Materials as defined in (3) and (4) above.

(iii) If any of the work is performed by a subcontractor, the Contractor shall be paid the actual and reasonable cost of such subcontracted work computed as outlined in (1) through (5) above, or on such other basis as may be approved by the Owner. Contractor's profit and overhead on subcontractor's work shall be computed at fifteen (15) percent as limited in this section. Subcontractor's profit and overhead amount shall be computed at five (5) percent of materials and direct labor to cover the subcontractor's profit, superintendence, administration, insurance and other overhead. For purposes of computing profit and overhead, only one level or tier of subcontractors will be allowed.

(7) Overhead shall be defined to include the following items:

(i) Premium on bond.

(ii) Premium on insurance required by the State, Workmen's Compensation Insurance, public liability and property damage insurance, unemployment insurance, federal old-age benefits, other payroll taxes and such reasonable charges that are paid by the Contractor pursuant to written agreement with his employee.

(iii) All salary and expenses of executive officers, supervising officers or supervising employees.

(iv) All clerical or stenographic employees.

(v) All charges for minor equipment such as small tools, including shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, etc. and other miscellaneous supplies and services.

(vi) All drafting room accessories such as paper, tracing cloth, blueprinting, etc.

Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the

Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

90-06 PARTIAL PAYMENTS. Partial payments will be made at least once each month as the work progresses. Said payments will be based upon estimates prepared by the Engineer of the value of the work performed and materials complete in place in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection titled PAYMENT FOR MATERIALS ON HAND of this section.

No partial payment will be made when the amount due the Contractor since the last estimate amounts to less than five hundred dollars.

From the total of the amount determined to be payable on a partial payment, 5 percent of such total amount will be deducted and retained by the Owner until the final payment is made, ~~except as may be provided (at the Contractor's option) in the subsection titled PAYMENT OF WITHHELD FUNDS of this section.~~ The balance (90 percent) of the amount payable, less all previous payments, shall be certified for payment. ~~Should the Contractor exercise his/her option, as provided in the subsection titled PAYMENT OF WITHHELD FUNDS of this section, no such 10 percent retainage shall be deducted.~~

When not less than 95 percent of the work has been completed, the Engineer may, at the Owner's discretion and with the consent of the surety, prepare an estimate from which will be retained an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in the subsection titled ACCEPTANCE AND FINAL PAYMENT of this section.

The amount of retainage withheld from the Contractor's monthly partial payments shall be 5%.

90-07 PAYMENT FOR MATERIALS ON HAND. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.

b. The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at anytime prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his/her responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

90-08 PAYMENT OF WITHHELD FUNDS. ~~At the Contractor's option, he/she may request that the Owner accept (in lieu of the 10 percent retainage on partial payments described in the subsection titled PARTIAL PAYMENTS of this section) the Contractor's deposits in escrow under the following conditions.~~

~~a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.~~

~~b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the 10 percent retainage that would otherwise be withheld from partial payment.~~

~~c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.~~

~~d. The Contractor shall obtain the written consent of the surety to such agreement.~~

90-09 ACCEPTANCE AND FINAL PAYMENT. When the contract work has been accepted in accordance with the requirements of the subsection titled FINAL ACCEPTANCE of Section 50, the Engineer will prepare the final estimate of the items of work actually performed. The Contractor shall approve the Engineer's final estimate or advise the Engineer of his/her objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the Engineer shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with the subsection titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Section 50.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

Should elements of work require delay in final payment due to seasonal or other reasons, the Owner may retain or withhold an agreed upon amount from items of work associated with the delayed items and hold that retainage, even after final payment less the retained amounts, until the Contractor has fulfilled the

elements of work delayed to the satisfaction of the Owner. The Owner shall release the retained amount after all associated work for which the delay item has been accepted by the Owner.

If the Contractor has filed a claim for additional compensation under the provisions of the subsection titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Section 50 or under the provisions of this subsection, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

END OF SECTION 90

SECTION 100

CONTRACTOR QUALITY CONTROL PROGRAM

100-01 GENERAL. When the specification requires a Contractor Quality Control Program, the Contractor shall establish, provide, and maintain an effective Quality Control Program that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The intent of this section is to enable the Contractor to establish a necessary level of control that will:

- a. Adequately provide for the production of acceptable quality materials.
- b. Provide sufficient information to assure both the Contractor and the Engineer that the specification requirements can be met.
- c. Allow the Contractor as much latitude as possible to develop his or her own standard of control.

The Contractor shall be prepared to discuss and present, at the preconstruction conference, his/her understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed by the Engineer and a written finding of no objection to the Quality Control Program is provided by the Engineer. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed and a written finding of no objection to the Quality Control Program is provided by the Engineer.

The quality control requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the Engineer.

100-02 DESCRIPTION OF PROGRAM.

a. General Description. The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

b. Quality Control Program. The Contractor shall describe the Quality Control Program in a written document that shall be reviewed by the Engineer prior to the start of any production, construction, or off-site fabrication. The written Quality Control Program shall be submitted to the Engineer for review at least **[5]** calendar days before the **Preconstruction Conference**.

The Quality Control Program shall be organized to address, as a minimum, the following items:

- a. Quality control organization;

- b. Project progress schedule;
- c. Submittals schedule;
- d. Inspection requirements;
- e. Quality control testing plan;
- f. Documentation of quality control activities; and
- g. Requirements for corrective action when quality control and/or acceptance criteria are not met.

The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this contract.

The cost of development, administration and/or performance of the Quality Control Program shall not be paid for separately but shall be included in various other bid items.

100-03 QUALITY CONTROL ORGANIZATION. The Contractor Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item of work. If necessary, different technicians can be utilized for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the Quality Control Program, the personnel assigned shall be subject to the qualification requirements of paragraph 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The quality control organization shall consist of the following minimum personnel:

a. Program Administrator. The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of 5 years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the contract.

Additional qualifications for the Program Administrator shall include at least 1 of the following requirements:

- (1) Professional engineer with 1 year of airport paving experience acceptable to the Engineer.
- (2) Engineer-in-training with 2 years of airport paving experience acceptable to the Engineer.
- (3) An individual with 3 years of highway and/or airport paving experience acceptable to the Engineer, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.
- (4) Construction materials technician certified at Level III by the National Institute for Certification in Engineering Technologies (NICET).

(5) Highway materials technician certified at Level III by NICET.

(6) Highway construction technician certified at Level III by NICET.

(7) A NICET certified engineering technician in Civil Engineering Technology with 5 years of highway and/or airport paving experience acceptable to the Engineer.

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the contract plans and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm. The Program Administrator may supervise the Quality Control Program on more than one project provided that person can be at the job site within 2 hours after being notified of a problem.

b. Quality Control Technicians. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II or higher construction materials technician or highway construction technician and shall have a minimum of 2 years of experience in their area of expertise.

The quality control technicians shall report directly to the Program Administrator and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 100-06.

(2) Performance of all quality control tests as required by the technical specifications and Section 100-07.

Certification at an equivalent level, by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing Levels. The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The Quality Control Program shall state where different technicians will be required for different work elements.

100-04 PROJECT PROGRESS SCHEDULE. The Contractor shall submit a coordinated construction schedule for all work activities. The schedule shall be prepared as a network diagram in Critical Path Method (CPM), PERT, or other format, or as otherwise specified in the contract. As a minimum, it shall provide information on the sequence of work activities, milestone dates, and activity duration.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

100-05 SUBMITTALS SCHEDULE. The Contractor shall submit a detailed listing of all submittals (e.g., mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

a. Specification item number;

- b. Item description;
- c. Description of submittal;
- d. Specification paragraph requiring submittal; and
- e. Scheduled date of submittal.

100-06 INSPECTION REQUIREMENTS. Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by Section 100-07.

Inspections shall be performed daily to ensure continuing compliance with contract requirements until completion of the particular feature of work. These shall include the following minimum requirements:

a. During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition. The Quality Control Program shall detail how these and other quality control functions will be accomplished and utilized.

b. During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The Program shall document how these and other quality control functions will be accomplished and utilized.

100-07 QUALITY CONTROL TESTING PLAN. As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.

The testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- a. Specification item number (e.g., P-401);
- b. Item description (e.g., Plant Mix Bituminous Pavements);
- c. Test type (e.g., gradation, grade, asphalt content);
- d. Test standard (e.g., ASTM or AASHTO test number, as applicable);
- e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated);
- f. Responsibility (e.g., plant technician); and
- g. Control requirements (e.g., target, permissible deviations).

The testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D 3665. The Engineer shall be provided the opportunity to witness quality control sampling and testing.

All quality control test results shall be documented by the Contractor as required by Section 100-08.

100-08 DOCUMENTATION. The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the Engineer daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator.

Specific Contractor quality control records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily Inspection Reports. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the Engineer. These technician's daily reports shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

- (1) Technical specification item number and description;
- (2) Compliance with approved submittals;
- (3) Proper storage of materials and equipment;
- (4) Proper operation of all equipment;
- (5) Adherence to plans and technical specifications;
- (6) Review of quality control tests; and
- (7) Safety inspection.

The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The Engineer shall be provided at least one copy of each daily inspection report on the work day following the day of record.

b. Daily Test Reports. The Contractor shall be responsible for establishing a system that will record all quality control test results. Daily test reports shall document the following information:

- (1) Technical specification item number and description;

- (2) Test designation;
- (3) Location;
- (4) Date of test;
- (5) Control requirements;
- (6) Test results;
- (7) Causes for rejection;
- (8) Recommended remedial actions; and
- (9) Retests.

Test results from each day's work period shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The daily test reports shall be signed by the responsible quality control technician and the Program Administrator.

100-09 CORRECTIVE ACTION REQUIREMENTS. The Quality Control Program shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications.

The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

100-10 SURVEILLANCE BY THE ENGINEER. All items of material and equipment shall be subject to surveillance by the Engineer at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the Engineer at the site for the same purpose.

Surveillance by the Engineer does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

100-11 NONCOMPLIANCE.

a. The Engineer will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the Engineer or his/her authorized representative to the Contractor or his/her authorized representative at the site of the work, shall be considered sufficient notice.

b. In cases where quality control activities do not comply with either the Contractor Quality Control Program or the contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the Engineer, the Engineer may:

(1) Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

END OF SECTION 100

SECTION 110

METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-01 GENERAL. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (\bar{X}) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality Index (e), Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

IT IS THE INTENT OF THIS SECTION TO INFORM THE CONTRACTOR THAT, IN ORDER TO CONSISTENTLY OFFSET THE CONTRACTOR'S RISK FOR MATERIAL EVALUATED, PRODUCTION QUALITY (USING POPULATION AVERAGE AND POPULATION STANDARD DEVIATION) MUST BE MAINTAINED AT THE ACCEPTABLE QUALITY SPECIFIED OR HIGHER. IN ALL CASES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PRODUCE AT QUALITY LEVELS THAT WILL MEET THE SPECIFIED ACCEPTANCE CRITERIA WHEN SAMPLED AND TESTED AT THE FREQUENCIES SPECIFIED.

110-02 METHOD FOR COMPUTING PWL. The computational sequence for computing PWL is as follows:

- a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.
- b. Locate the random sampling position within the sublot in accordance with the requirements of the specification.
- c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

- d. Find the sample average (\bar{X}) for all sublot values within the lot by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

Where: \bar{X} = Sample average of all sublot values within a lot

x_1, x_2 = Individual sublot values

n = Number of sublots

- e. Find the sample standard deviation (S_n) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2) / (n - 1)]^{1/2}$$

Where: S_n = Sample standard deviation of the number of subplot values in the set

d_1, d_2, \dots = Deviations of the individual subplot values x_1, x_2, \dots from the average value \bar{X} that is: $d_1 = (x_1 - \bar{X})$, $d_2 = (x_2 - \bar{X})$... $d_n = (x_n - \bar{X})$

n = Number of sublots

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$Q_L = (\bar{X} - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L , using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$Q_L = (\bar{X} - L) / S_n \text{ and } Q_U = (U - \bar{X}) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U , using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U . Determine the PWL by use of the following formula:

$$PWL = (P_U - P_L) - 100$$

Where: P_L = percent within lower specification limit

P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P 401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A 1 96.60

A 2 97.55

A 3 99.30

~~$$A-4 = 98.35$$~~

~~$$n = 4$$~~

~~2. Calculate average density for the lot.~~

~~$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$~~

~~$$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$$~~

~~$$X = 97.95 \text{ percent density}$$~~

~~3. Calculate the standard deviation for the lot.~~

~~$$S_n = [(((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)]^{1/2}$$~~

~~$$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$$~~

~~$$S_n = 1.15$$~~

~~4. Calculate the Lower Quality Index Q_L for the lot. ($L = 96.3$)~~

~~$$Q_L = (X - L) / S_n$$~~

~~$$Q_L = (97.95 - 96.30) / 1.15$$~~

~~$$Q_L = 1.4348$$~~

~~5. Determine PWL by entering Table 1 with $Q_L = 1.44$ and $n = 4$.~~

~~$$PWL = 98$$~~

~~B. PWL Determination for Air Voids.~~

~~1. Air Voids of four random samples taken from Lot A.~~

~~$$A-1 = 5.00$$~~

~~$$A-2 = 3.74$$~~

~~$$A-3 = 2.30$$~~

~~$$A-4 = 3.25$$~~

~~2. Calculate the average air voids for the lot.~~

~~$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$~~

~~$$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$$~~

~~$$X = 3.57 \text{ percent}$$~~

~~3. Calculate the standard deviation S_n for the lot.~~

~~$$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$$~~

~~$$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$$~~

~~$$S_n = 1.12$$~~

~~4. Calculate the Lower Quality Index Q_L for the lot. ($L = 2.0$)~~

~~$$Q_L = (X - L) / S_n$$~~

~~$$Q_L = (3.57 - 2.00) / 1.12$$~~

~~$$Q_L = 1.3992$$~~

~~5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and $n = 4$.~~

~~$$P_L = 97$$~~

~~6. Calculate the Upper Quality Index Q_U for the lot. ($U = 5.0$)~~

~~$$Q_U = (U - X) / S_n$$~~

~~$$Q_U = (5.00 - 3.57) / 1.12$$~~

~~$$Q_U = 1.2702$$~~

~~7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and $n = 4$.~~

~~$$P_U = 93$$~~

~~8. Calculate Air Voids PWL~~

~~$$PWL = (P_L + P_U) - 100$$~~

~~$$PWL = (97 + 93) - 100 = 90$$~~

~~EXAMPLE OF OUTLIER CALCULATION (Reference ASTM E 78)~~

~~Project: Example Project~~

~~Test Item: Item P 401, Lot A.~~

~~A. Outlier Determination for Mat Density.~~

~~1. Density of four random cores taken from Lot A, arranged in descending order.~~

~~$$A_3 = 99.30$$~~

~~$$A_4 = 98.35$$~~

~~$$A_2 = 97.55$$~~

~~$$A_1 = 96.60$$~~

~~2. Use $n=4$ and upper 5 percent significance level of to find the critical value for test criterion = 1.463.~~

~~3. Use average density, standard deviation, and test criterion value to evaluate density measurements.~~

~~a. For measurements greater than the average:~~

~~If: $(\text{measurement} - \text{average}) / (\text{standard deviation})$ is less than test criterion,~~

~~Then: the measurement is not considered an outlier~~

~~for A-3 Check if $(99.30 - 97.95) / 1.15$ greater than 1.463~~

~~1.174 is less than 1.463, the value is not an outlier~~

~~b. For measurements less than the average:~~

~~If $(\text{average} - \text{measurement}) / (\text{standard deviation})$ is less than test criterion,
the measurement is not considered an outlier~~

~~for A-1 Check if $(97.95 - 96.60) / 1.15$ greater than 1.463~~

~~1.0 is less than 1.463, the value is not an outlier~~

~~NOTE: In this example, a measurement would be considered an outlier if the density was:~~

~~greater than $(97.95 + 1.463 \times 1.15) = 99.63$ percent or,~~

~~less than $(97.95 - 1.463 \times 1.15) = 96.27$ percent~~

ROUNDING RULE

~~A. If the digit following the last digit to be kept is 0, 1, 2, 3, or 4, strike out that digit and all the following digits.~~

~~Example: For the number 28.69248539, if only three decimal places are being kept the number becomes 28.692.~~

~~B. If the digit following the last digit to be kept is 6, 7, 8, or 9, increase the last digit to be kept by 1 and strike out all the following digits.~~

~~Example: For the number 28.69248539, if only one decimal place is being kept the number becomes 28.7.~~

~~C. If the digit following the last digit to be kept is 5 and there are digits other than zero to the right of 5, increase the last digit to be retained by 1 and strike out all following digits.~~

~~Example: For the number 28.69248539, if five decimal places are being kept the number becomes 28.69249.~~

~~D. If the digit following the last digit to be kept is 5 and there are no digits other than zero beyond 5, increase the last digit to be retained by 1 if it is odd or leave it unchanged if it is even.~~

~~Example: For the number 28.69248500, if five decimal places are being kept the number becomes 28.69248.~~

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4807	1.5407	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4320	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5139	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304

54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

TABLE 1. TABLE FOR ESTIMATING PERCENT OF LOT WITHIN LIMITS (PWL)

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5120	-0.4990	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2200	-1.2410	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914

5	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
4	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
3	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
2	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
1	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362

END OF SECTION 110

SECTION 120 NUCLEAR GAGES

120-01 TESTING. When the specifications provide for nuclear gage acceptance testing of material for Items P-152, P-154, P-208, and P-209, the testing shall be performed in accordance with this section. At each sampling location, the field density shall be determined in accordance with ASTM D 2922 6938 using the Direct Transmission Method. The nuclear gage shall be calibrated in accordance with Annex A1. Calibration and operation of the gage shall be in accordance with the requirements of the manufacturer. The operator of the nuclear gage must show evidence of training and experience in the use of the instrument. The gage shall be standardized daily in accordance with ASTM D 2922 6938, paragraph 8.

Use of ASTM D 2922 6938 results in a wet unit weight, and when using this method, ASTM D 3017 shall be used to determine the moisture content of the material. The moisture gage shall be standardized daily in accordance with ASTM D 3017, paragraph 7.

The material shall be accepted on a lot basis. Each Lot shall be divided into eight (8) sublots when ASTM D 2922 6938 is used.

120-02. When PWL concepts are incorporated, compaction shall continue until a PWL of 90 percent or more is achieved using the lower specification tolerance limits (L) below.

The percentage of material within specification limits (PWL) shall be determined in accordance with the procedures specified in Section 110 of the General Provisions.

The lower specification tolerance limit (L) for density shall be:

Specification Item Number Specification Tolerance (L) for Density, (percent of laboratory maximum)

Item P-152	90.5 for cohesive material,	95.5 for non-cohesive
Item P-154	95.5	
Item P-208	97.0	
Item P-209	97.0	

If the PWL is less than 90 percent, the lot shall be reworked and recompacted by the Contractor at the Contractor's expense. After reworking and recompaction, the lot shall be resampled and retested. Retest results for the lot shall be reevaluated for acceptance. This procedure shall continue until the PWL is 90 percent or greater.

120-03 VERIFICATION TESTING. (For Items P-152 and P-154 only.) The Engineer will verify the maximum laboratory density of material placed in the field for each lot. A minimum of one test will be made for each lot of material at the site. The verification process will consist of; (1) compacting the material and determining the dry density and moisture-density in accordance with [ASTM D 698 for aircraft gross weights less than 60,000 pounds] [ASTM D 1557 for aircraft gross weights 60,000 pounds or more], and (2) comparing the result with the laboratory moisture-density curves for the material being placed. This verification process is commonly referred to as a "one-point Proctor". If the material does not conform to the existing moisture-density curves, the Engineer will establish the laboratory maximum density and optimum moisture content for the material in accordance with [ASTM D 698 for aircraft gross weights less than 60,000 pounds] [ASTM D 1557 for aircraft gross weights 60,000 pounds or more].

Additional verification tests will be made, if necessary, to properly classify all materials placed in the lot.

The percent compaction of each sampling location will be determined by dividing the field density of each subplot by the laboratory maximum density for the lot.

END OF SECTION 120

CITY OF DULUTH - PART II -
SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY AND/OR CITY ASSISTED ACTIVITIES
(revised 9/2/09)

The following conditions take precedence over any conflicting conditions in this Contract.

<u>Section</u>	<u>Title</u>
1	Restrictions on Disbursements, Subcontractors Federal Agency Requirements, Separability, Property
2	Miscellaneous Provisions
3	Definitions
4	Environmental Provisions
5	Contract Compliance
6	Records, Reports and Information, Audits and Inspections
7	Conflict of Interest and Lobbying
8	Labor Standards - Physical Improvement Projects
9	Minnesota Department of Transportation Specification 1960 Partial Payments
10	Housing and Urban Development (HUD) Section 4010
11	Equal Opportunity and Affirmative Action
12	Employment Opportunities - "HUD Section 3"
13	Federal Requirements for Minority/Women Business Enterprises Contract Guidance - MPFA
14	Forms

Section I

Restrictions on Disbursements

No money under this Contract shall be disbursed by the City to any Contractor except pursuant to a written contract which incorporates the applicable PART II, Supplementary General Conditions for Federally and/or City Assisted Activities, and unless the Contractor is in compliance with the Federal Agency requirements with regard to accounting and fiscal matters to the extent they are applicable.

Subcontractors

(A) The Contractor shall include in any subcontract the clauses set forth in the PART II, Supplementary General Conditions for Federally and/or City Assisted Activities in their entirety and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(B) The Contractor shall not subcontract any part of the work covered by this Contract or permit subcontracted work to be further subcontracted without the City's prior written approval of the subcontractors. The City will not approve any subcontractor for work covered by this Contract who is at the time ineligible under the provisions of any applicable regulations issued by a Federal Agency or the Secretary of Labor, United States Department of Labor, to receive an award of such subcontract.

Federal Agency Requirements

Unearned payments under this Contract may be suspended or terminated upon refusal to accept any additional conditions that may be imposed by the Federal Agency at any time; or if the grant, if applicable, to the City under which this Contract is made is suspended or terminated.

Separability

If any provisions of this Contract is held invalid, the remainder of this Contract shall not be affected thereby if such remainder would then continue to conform to the terms and requirements of applicable law.

Property

Acquisition, use, and disposal of all property, materials and goods acquired as a result of activities made possible by this Contract shall be accomplished in accordance with the applicable provisions of Federal Management Circular (FMC)-74-7, as amended.

Section 2

Miscellaneous Provisions

(A) **Copyrights.** In the event this Contract results in a book or other copyrightable material, the author is free to copyright the work, but Federal Agency and the City reserve a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, all copyrighted material and all material which can be copyrighted.

(B) **Patents.** Any discovery or invention arising out of or developed in the course of work aided by this Contract shall be promptly and fully reported to the Federal Agency and the City for determination by the Federal Agency as to whether patent protection on such invention or discovery shall be sought and how the rights in the invention or discovery, including rights under any patent issued thereon, shall be disposed of and administered in order to protect the public interests.

(C) **Political Activity Prohibited.** None of the funds, materials, property or services provided directly or indirectly under this Contract shall be used in the performance of this Contract on any partisan political activity, or to further the election or defeat of any candidate for public office.

(D) **Lobbying Prohibited.** None of the funds under this Contract shall be used for publicity or propaganda purposes designed to support or defeat legislation pending before the Congress or the City.

(E) **Prohibition of and Elimination of Lead-Based Paint Hazard.** Notwithstanding any other provision, the Agency and Contractor agree to comply with the regulation issued by the Secretary of Housing and Urban Development set forth in 37 F. R. 22732-3 and all applicable rules and orders issued thereunder which prohibit the use of lead-based paint in residential structures undergoing Federally assisted construction or rehabilitation and require the elimination of lead-based paint hazards. Every contract or subcontract, including paint, pursuant to which such Federally assisted construction or rehabilitation is performed shall include appropriate provisions prohibiting the use of lead-based paint.

(F) **Architectural Barriers Act.** The design for and construction of any facility funded in whole or in part by this Contract shall be in conformance with the American Standard Specification for Making Buildings and Facilities Accessible and Usable by the Physically Handicapped, Number A-117.1-1971, as modified.

(G) **Relocation and Acquisition.** Any relocation or acquisition resulting from activities funded in whole or in part by this Contract shall be in conformance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (40 U.S.C. 4601) and the implementing regulations 24CFR Part 42.

(H) **Prohibition Against Payments of Bonus or Commission.** The assistance provided under this Contract shall not be used in the payment of any bonus or commission for the purpose of obtaining Federal Agency approval for such assistance, or Federal Agency approval of applications for additional assistance, or any other approval or concurrence of a Federal Agency required under this Contract, Federal Law or Federal Regulations thereto; provided, however, that reasonable fees or bonafide technical, consultant, managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as project costs.

(I) **Hatch Act.** Where applicable, the Contractor will comply with the provisions of the Hatch Act which limits the political activity of the Contractor's employees.

Section 3

Definitions

(A) City means the City of Duluth, Contracting Officer, or other persons authorized to act on behalf of the City of Duluth.

(B) Contracting Officer is the delegated representative of the City who has the responsibility for administering the Project.

(C) Contractor means an entity, whether public or private, which furnishes (other than standard commercial supplies, office space or printing services) to the City, products, services or supplies as described in this project Contract.

(D) Federal Agency means the United States, the District of Columbia, and any executive department, independent establishment, administrative agency, or instrumentality of the United States or of the District of Columbia, including any corporation, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or by any of the foregoing departments, establishments, agencies, and instrumentalities. The term Federal Agency shall also include the person or persons authorized to act on behalf of said Federal Agency.

(E) Project means the activities to be undertaken by the Contractor as described in this Contract, which from time to time may be amended by mutual consent of the City and Contractor.

(F) Subcontractor means an entity, regardless of tier, which has entered into an agreement with the Contractor or another Subcontractor, to undertake certain Project activities as described in that agreement.

(G) The term labor standards, as used in the Contract, means the requirements of the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act (other than those relating to safety and health), the Copeland Act, and the prevailing wage provisions of the other statutes listed in 20 CFR 5.1.

(H) Work means all labor necessary to produce the construction required by the Contract Documents, all materials and equipment incorporated or to be incorporated in such construction, products, services, or supplies required by the Contract Documents, or any other requirements set forth in the Contract.

(I) Additional Definitions, that are applicable to the Labor Standards provisions - Section 8 - of this Contract can be found in 29CFR5.2 as published by the U.S. Department of Labor and said definitions are hereby incorporated by reference into the provisions of this Contract.

Section 4

Environmental Provisions

(A) The Contractor agrees to follow the regulations, requirements, policies, goals and procedures set forth by the Council on Environmental Quality (CEQ) under provisions of the National Environmental Policy Act (NEPA) (Pub. L. 91-190, 42 U.S.C. 4321 et seq.), Executive Order 11514, and 40 CFR Part 1500.

(B) **Historic Properties.** The Contractor agrees to follow the regulations, requirements, policies, goals, and procedures set forth under provisions of the National Historic Preservation Act of 1966 (Pub. L. 89-665); Preservation of Historic and Archeological Data Act of 1974 (Pub. L. 93-291); Executive Order 11593; 36 CFR, Part 800 and applicable State legislation or regulations.

(C) **Coastal Zones and Wetlands.** The Contractor agrees to follow the regulations, requirements, policies, goals and procedures set forth under provisions of the Coastal Zone Management Act of 1972 (Pub. L. 92-583) and applicable State legislation or regulations.

(D) **Noise.** The Contractor agrees to comply with provisions set forth in the U.S. Department of Housing and Urban Development Handbook 1390.2, Noise Abatement and Control, Department Policy, Responsibility and Standards, 1971.

(E) **Flood Plain.** The Contractor agrees to comply with the provisions set forth in the Flood Disaster Protection Act of 1973 (Pub. L. 93-234) and implementing regulations; Title 24, Chapter X, Subchapter B, National Flood Insurance Program, Executive Order 11296, and Executive Order 11988 relating to the evaluation of flood hazards.

(F) **Air Quality.** The Contractor agrees to comply with provisions set forth in the Clean Air Act (Pub. L. 90-148) and Clean Air Act Amendments of 1970 (Pub. L. 91-604); and applicable U.S. Environmental Protection Agency implementing regulations.

(G) **Water Quality.** The Contractor agrees to comply with the provisions set forth in the Federal Water Pollution Control Act (Pub. L. 92-500) and applicable U.S. Environmental Protection Agency implementing regulations, and Executive Order 11288 relating to the prevention, control, and abatement of water pollution.

(H) **Wildlife.** The Contractor agrees to comply with the provisions of the Fish and Wildlife Coordination Act (Pub. L. 85-264).

Section 5

Contract Compliance

(A) In the event of the Contractor's noncompliance with the provisions of this Contract or with any of the said regulations, the City may withhold payment(s) until evidence of compliance by the Contractor has been demonstrated, or the Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts.

(B) In the event the Contract is terminated or canceled as a result of noncompliance with any of the provisions of this Contract, the City may subject to bids the remainder of the Project for which this Contract was made. The City shall have the right upon termination or suspension to withhold all further payments under this Contract to the Contractor. Upon the award of a new contract for the remainder of the Project, the City shall pay to the Contractor an amount no more than the balance remaining due to the Contractor less the sum of the costs incurred by the City which are necessary in preparing the new bid specifications. In the event the amount paid the Contractor prior to the date of termination or cancellation exceeds the full amount of this Contract less the cost of the new contract and the additional costs mentioned above, the Contractor agrees to reimburse the City for such excess amount within ninety days after the new contract is awarded by the above procedures.

(C) Provisions contained in subparagraph (A) and (B) above shall not be interpreted as precluding any authorized Federal, State, or County governmental unit from exercising their legal administrative or other responsibilities in respect to the enforcement by said governmental units of laws or regulations concerning activities of the Contractor.

Section 6

Records

(A) **Establishment and Maintenance of Records.** Records shall be maintained in accordance with requirements prescribed by the Federal Agency or the City with respect to all matters covered by this Contract. Except as otherwise authorized by the Federal Agency, such records shall be maintained for a period of three years after receipt of final payment under this Contract.

(B) **Documentation of Costs.** All costs shall be supported by properly executed payrolls, time records, invoices, contracts, or vouchers, or other official documentation evidencing in proper detail the nature and propriety of the charges. All checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents pertaining in whole or in part to this Contract shall be clearly identified and readily accessible.

Reports and Information

At such times and in such forms as the Federal Agency or the City may require, there shall be furnished to the Federal Agency or the City such statements, records, data and information as the Federal Agency or the City may request pertaining to matters covered by this Contract.

Audits and Inspection

At any time during normal business hours and as often as the City, the Federal Agency and/or the Comptroller General of the United States may deem necessary, there shall be made available to the City, the Federal Agency and/or representatives of the Comptroller General for examination of all its records with respect to all matters covered by this Contract and will permit the City, the Federal Agency and/or representative of the Comptroller General to audit, examine and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment, and other data relating to all matters covered by this Contract.

Section 7

Conflict of Interest and Lobbying

(A) **Interest of Members, Officers, or Employees of the City, Members of Local Governing Body, or Other Public Officials.** No member, officer, or employee of the City, or its designees or agents, or member of the governing body of the City, during his/her tenure of for one year thereafter, shall have any interest, direct or indirect in any contract or subcontract, or the proceeds thereof, for work to be performed in connection with the Project assisted under this Contract. Any contract in which any of the above indicated individuals becomes directly or indirectly, interested, personally or as a member of a firm, or as an officer, director, or stockholder of a corporation, shall be and become absolutely void; and any money which shall have been paid on such contract by the City may be recovered back from any or all persons interested therein, by a joint action or several actions.

(B) The Contractor agrees that he will incorporate into every contract required to be in writing the following provisions: **Interest of Contractors and Employees** - The Contractor covenants that he presently has no interest and shall not acquire any interest, direct or indirect, in the Project which would conflict in any manner or degree with the performance of this Contract, and no person having any conflicting interest shall be employed. Any interest on the part of the Contractor or his employees must be disclosed to the Federal Agency and the City. Provided, however, that this paragraph shall be interpreted in such a manner so as not to unreasonably impede any statutory requirements that opportunity be provided for employment of and participation by certain residents of a designated geographical area, if applicable.

(C) **Interest of Member or of Delegate to Congress.** No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this Contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

(D) The Contractor by signing this document certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The above certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1332, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(E) The parties to this Contract certify and agree that they are under no contractual or other disability which would prevent them from complying with the terms of this Contract.

Section 8

Labor Standards - Physical Improvement Projects

Where applicable, there shall be included in all construction, rehabilitation, alteration or repair contracts with private entities made possible by or resulting from this Contract, the following Labor Standards provisions;

(A) General Requirements.

(1) **Subcontracts.** The Contractor shall include in any subcontract the clauses set forth in Section 8, **Labor Standards**, in their entirety and also a clause requiring the subcontractors to include these clauses in any lower tier subcontract which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(2) The transporting of materials and supplies to or from the site of the Project or Program to which this Contract pertains by the Employees of the Contractor or of any subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the Project or Program to which this Contract pertains by persons employed by the Contractor or by any subcontractor, shall for the purpose of this Contract, and without limiting the generality of the foregoing provisions of this Contract, be deemed to be work to which these **Labor Standards** provisions are applicable.

(3) No person under the age of eighteen years shall be employed on work covered by this Contract.

(4) In connection with the performance of work under this Contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89-176, September 10, 1955 (18 U.S.C. 4082 (c) (2)) and Executive Order 11755, December 29, 1973.

(5) The Contractor will permit authorized representatives of the Federal Agency and the City to interview employees during working hours on the job.

(6) No employee to whom the wage, salary, or other **Labor Standards** provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the Labor Standards applicable under this Contract to his employer.

(B) **Safety Standards.** No Contractor or subcontractor contracting for any part of a construction contract shall require any laborer or mechanic, including apprentices and trainees, employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his health or safety, as determined under construction safety and health standards promulgated by the Secretary of Labor. The Contractor or subcontractor comply with all the rules, regulations, and relevant orders, promulgated by the Secretary of Labor pursuant to Public Law 91-54.

(C) **Davis-Bacon Act - 29 CFR 5.5**

Refer to Section 10, Page 9

Housing and Urban Development (HUD) form-4010 (06/2009) Ref Handbook 1344.1

City of Duluth "Mini Davis-Bacon"

(D) **City of Duluth - Minimum Wage Ordinance 8940, as Amended.**

(1) On a project (as defined below) funded in whole or in part by federal and/or state funds, these local provisions shall prevail in those instances where the requirements of the local provisions are equal to or greater than similar minimum labor standards provisions as set forth in applicable federal and/or state laws and regulations.

(2) In all contracts in excess of \$2,000 for projects (as defined below), the Contractor's particular attention is called to Ordinance 8940, effective June 8, 1989, respectively coded as Article IV of Chapter 2 of the Duluth City Code, and entitled "An Ordinance Pertaining to Wages and Working Hours of Persons on Public Works in the City of Duluth", as set forth below:

(3) **Definitions.**

For the purposes of this section the following words and phrases shall have the meanings respectively ascribed to them in this section:

(a) **Basic hourly rate.** - The hourly wage paid to any employee.

(b) **Prevailing wage rate.** - The basic hourly rate plus fringe benefits prevailing in the city of Duluth as determined by the United States secretary of labor pursuant to the Davis-Bacon act, as amended; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the city jointly certify that the prevailing basic hourly rate plus fringe benefits of such workers differs from the amount determined by the secretary of labor, the certified rate shall be considered to be the prevailing wage rate for such class of workers in that industry.

(c) **Fringe benefits.** - Employer contribution for health and welfare benefits, vacation benefits, pension benefits, and all other economic benefits other than the basic hourly rate.

(d) **Apprentice** - An employee who is working under a training program which is approved either by the U.S. Department of Labor Bureau of Apprenticeship & Training or the Minnesota Director of Voluntary Apprenticeship; see apprentice ratios on page 22 and HUD 4010 in Section 10..

(e) **Trainee** - An employee registered with the U. S. Department of Labor Employment & Training Administration; see HUD 4010 in Section 10.

(f) **Project.** - Erection, construction, demolition, painting, remodeling or repairing of any public building, highway, sidewalk, bridge, water or gas line, sewer and sewage treatment facility or other public work performed under contract with the city.

(g) **Labor mechanic.** - All persons utilized, employed or working on a project who are doing work usually done by mechanics and laborers, including proprietors, partners, and members of cooperatives.

(4) **Wage Rates and Hours for City of Duluth Projects.**

(a) Any contract which provides for a project of estimated total cost of over \$2,000.00 shall contain a stipulation that no laborer, mechanic or apprentice-trainee employed directly upon the project work site by the contractor or any subcontractor shall be permitted or required to work at a rate of pay less than the prevailing wage rate; nor shall any such employee be permitted or required to work more than 8 hours in any work day or 40 hours in any work week unless he is paid at a rate of at least 1½ times the basic hourly rate for all hours in excess of 8 per day OR 40 per week and unless he receives fringe benefits that are at least equal to those in the prevailing wage rate; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the city jointly certify that the maximum number of hours that such persons may work under existing labor agreements before overtime wages must be paid differs from the hours specified in this paragraph, the maximum number of hours specified in such labor agreements shall be substituted for those specified above in applying the provisions of this paragraph to such workers.

(b) The word "or" in the state statute and the City of Duluth Code refers to the number of hours worked in any one week or, in the alternative, the number of hours worked in any one day in the week (the days in one week being totaled for reporting purposes); the law requires use of the alternative which results in the higher number of overtime hours for each employee whose time is being reported.

EXCEPTIONS: Federal government funding only and HUD (Housing and Urban Development) funding - see point "e"

In summary, if a project is solely funded with City of Duluth monies, the City allows the employees to work four ten-hour days and be paid at the regular hourly rate for those ten hours; exceeding hours must be paid at the overtime rate. An employer may not withhold overtime payment exclusively until 40 hours per week have been worked. Daily overtime must be paid as it is earned.

• The base workweek hours must be clearly indicated on each payroll. Employees may be assigned a different workweek; however, that must be clearly marked beside the employees' names.

The following are examples of how these rules apply to different situations.

TT refers to the total time worked on the day or in the week

RT refers to the hours worked at the regular rate of pay (straight time)

OT refers to the hours worked for which overtime must be paid

State Funded with or without federal funding Projects								City-only Funded Projects (4 ten-hour days)						
	Mon	Tues	Wed	Thurs	Fri	Sat	Total	Mon	Tues	Wed	Thurs	Fri	Sat	Total
TT	10	10	10	10	0	6	46	10	10	10	10	0	6	46
RT	8	8	8	8	0	6	38	10	10	10	10	0	0	40
OT	2	2	2	2	0	0	8	0	0	0	0	0	6	6

State Funded with or without federal funding Projects								City-only Funded Projects (4 ten-hour days)						
	Mon	Tues	Wed	Thurs	Fri	Sat	Total	Mon	Tues	Wed	Thurs	Fri	Sat	Total
TT	0	10	10	0	7	0	27	10	0	12	0	0	0	32
RT	0	8	8	0	7	0	23	10	0	10	10	0	0	30
OT	0	2	2	0	0	0	4	0	0	2	0	0	0	2

(c) Overtime Calculations

Minnesota Statutes Chapter 177.42, subd 4 specifies that the prevailing hours of labor may not be more than eight hours per day or more than 40 hours per week (as stated above in (b), the City of Duluth does allow for ten hours per day/40 hours per week with City funding *only*).

Minnesota Statutes Chapter 177.42, subd 5 defines the hourly basic rate as the hourly wage paid to any employee. (subd 6): The prevailing wage rate means the hourly basic rate of pay plus the contribution for health and welfare benefits, vacation benefits, pension benefits, and any other economic benefit paid to the largest number of workers engaged in the same class of labor within the area...

Minnesota Statutes Chapter 177.43, subd 1 (1) ...employees are permitted to work more hours than the prevailing hours of labor [being] paid for all hours in excess of the prevailing hours at a rate of at least 1-½ times the hourly basic rate of pay. (2) A laborer or mechanic may not be paid a lesser rate of wages than the prevailing wage rate in the same or most similar trade or occupation in the area.

An employer may pay a lower hourly rate and higher fringe benefit rate--to a bona fide plan--than stated in the wage decision providing the total of the two rates is equal to or greater than the total in the wage decision.

Overtime Calculation with Fringe Benefits Paid to Bona Fide Plans

For overtime purposes, an employer paying higher fringe benefits to a bona fide plan and paying a lower hourly rate **MUST** calculate the overtime on the higher hourly rate as stated in the contract's wage decision.

Overtime Calculation with Cash Payment of Fringe Benefits

When the fringe benefit is paid directly to an employee, the prevailing base rate and the fringe benefit rate for a specific classification are totaled to arrive at the hourly rate. *Overtime is calculated (1.5 x) the base rate with the fringe benefit amount added to that rate: base rate x 1.5 + fringe benefit rate = overtime rate.*

(d) A contractor shall not reduce a worker's private, regular rate of pay when the wage rate certified by the U. S. Department of Labor or the Minnesota Department of Labor & Industry is less than the worker's normal hourly wage [Minnesota Statute 181.03 subdivision 1(2)].

(e) Regular Time & Overtime Definitions

- **State of Minnesota** funded projects with or without federal funding *only allow for five eight-hour days per week at regular time*. Overtime is calculated at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **City of Duluth** funded projects do permit four ten-hour work days at regular time--see point 4-a, b for stipulations. Overtime is calculated at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **Federal** funded only projects allow overtime pay for hours worked in excess of 40 in a workweek at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **HUD** funded projects allow overtime pay for hours worked in excess of 40 in a workweek at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.

(f) The minimum hourly prevailing wages are contained in each project specification. When both federal (general decision rates from the U. S. Department of Labor) and State of Minnesota prevailing wages for state funded construction projects from the Minnesota Department of Labor and Industry are used, the prime contractor and all subcontractors including trucking operations, are required to pay the higher of the two wages for all laborers and mechanics [MnDOT Contract Administration Manual, Section 5-591.320].

(g) The prime contractor and any lower-tier subcontractor shall review all wage decisions and compensate a worker according to the type of work performed and at the rate that is the greatest.

(h) State of Minnesota prevailing wages typically list two rates for each classification with two effective dates. Should any City of Duluth contract continue to and past the second effective date, that rate and fringe benefit will be in effect through the remainder of the project.

(i) All contracts for city projects shall have applicable schedules of prevailing wage rates set forth in the contract. Schedules of applicable prevailing wage rates shall be present on all project job sites and shall either be posted on the site or be on the person of any supervisor in charge of the job site.

(j) Employees on projects shall be paid at least weekly. Fringe benefits shall be paid either in cash or to an employee benefit plan that has been approved by the U.S. Department of Labor.

■ **The fringe benefit package is an integral portion of the prevailing wage. Should the prime contractor become delinquent with any fringe benefit plan administrator's requirements for monthly payment, an estimated amount due that plan plus penalties will be withheld from the monthly estimate(s). This also pertains to subcontractors; their fringe plan payment delinquency will affect the monthly estimate(s) in the same manner. See MnDOT Specification 1906 on page eight.**

See Statement of Compliance and Certified Payroll Report requirements in Section 10, HUD 4010 and web sites in Section 14, Forms.

(k) Any contractor or subcontractor working on a project shall furnish the City with **original** certified payroll reports with **original signatures** relating to the project. Such certified payroll reports shall be **submitted weekly** on U.S. Department of Labor standard forms (WH-347) or their equivalent--using the same

format--to the City of Duluth Labor Standards representative. All City of Duluth funded projects must have the base workweek hours indicated on the certified payroll form and/or beside each employee's name (should some employees be working different base workweeks).

(l) No contractor or subcontractor working on a project shall evade or attempt to evade the provisions of this section through the use of non-recognized training programs. The only employees involved in training programs that shall be allowed to work on projects covered by this section shall be apprentice-trainees as defined by this article.

(m) Any person violating the provisions of this section shall be guilty of a misdemeanor with each day of violation constituting a separate offense. In addition, if the prevailing wage rate and accompanying fringe benefit rate is not paid to employees working on a project, the City of Duluth may withhold contract payments to the prime contractor until such deficiencies are corrected. Should fringe benefits be paid to authorized Plans, the payments must be made within the demands of those Plans. Delinquencies may result in withholding of project funds to the prime contractor.

(n) This section shall not apply to contracts for projects where the total cost of the project is less than \$2,000.00; nor to materialmen who do no more than deliver materials to the work site, except that this section shall apply to employees who deliver asphalt, concrete or mineral aggregate such as sand, gravel or stone where such material is incorporated into the project by depositing the material substantially in place, either directly or through spreaders, from the transporting vehicle.

(5) Helpers

A helper may perform work *only* if the helper classification is specified and defined in the federal wage decision and/or State of Minnesota wage decision incorporated into the project contract. Without such a helper classification, the contractor must assign a job classification that is the "same or most similar" [Minnesota Statute 177.44, subdivision 1] and compensate the helper for the actual work performed regardless of the helper's skill level.

(5) Apprentice Ratios

Journeyworkers must be on site with the apprentices and their hours must match.

FUNDING SOURCE:

City of Duluth and State of Minnesota with or without Federal funding

(i) Apprentices are not permitted to work alone under any circumstances.

(ii) Working foremen are acceptable as a journeyworker PROVIDING he/she is in the same classification.

» Example: carpenter foreman and carpenter apprentice

- Ratios are determined by the trade's labor agreement.
- In the absence of ratio language, the following State of Minnesota apprenticeship ratios will be applied:
(apprentice:journeyworker) 1:1 2:4 3:7 4:10, etc.
- Employees working in excess of the allowable ratio must be paid the full journeyworker compensation.
- Out-of-ratio apprentices will be calculated beginning with the apprentice at the highest level of training and, then, to less senior apprentices in their rank order.
- Should two or more out-of-ratio apprentices have the same level of training, whomever was on the work site first will receive journeyworker pay; if the apprentices at the same level of training began work on the project site at the same time, hours worked out-of-ratio for which restitution is due will be divided among those apprentices.

• Examples:

Four apprentices working unsupervised are on site. [4:0]

Ratio calls for four apprentices and ten journeyworkers [4:10]

Correction: all apprentices will receive the full journeyworker compensation as apprentices are not permitted to work alone.

Three apprentices and two journeyworkers are on site. [3:2]

Ratio calls for three apprentices and seven journeyworkers [3:7]

Two journeyworkers may accompany only one apprentice; therefore, the two highest level apprentices are paid the full journeyworker compensation. Even though this particular job has three apprentices--the second journeyworker is a mute point; a third journeyworker would also be a mute point in this example.

Correction: the two highest level apprentices are paid the full journeyworker compensation and the third lower level apprentice is considered in ratio.

H U D (CDBG) and Federal funding only

- Apprentices are not permitted to work alone unless the U. S. Department of Labor-approved agreement allows that practice.
- Working foremen are acceptable as a journeyworker PROVIDING he/she is in the same classification.
» Example: electrician foreman and electrician apprentice
- Ratios are determined by the trade's U. S. Department of Labor-approved agreement.
- In the event of the absence of ratio language in the applicable agreement, the Minnesota Department of Labor ratio of one apprentice for the first journeyworker and one apprentice for each three journeyworkers thereafter will be applied, (i.e., 1:1, 2:4, 3:7, 4:10, etc.).
- The legal apprentices are those who first came to work on the job site; in the event that all apprentices begin work on the project site at the same time, hours worked out-of-ratio for which restitution is due will be divided among the apprentices.
- Time cards will be required to substantiate the start times.
- Employees working in excess of the allowable ratio--or for which U. S. Department of Labor-apprentice agreement/certificate is not provided--must be paid the full journeyworker compensation.

• Examples:

Four apprentices and one journeyworker are on site. [4:1]

Ratio calls for four apprentices and ten journeyworkers. [4:10]

The first apprentice on site is considered in ratio as one journeyworker may only accompany one apprentice [1:1]; this particular job has four apprentices.

Correction: the second through the fourth apprentices coming on site are paid the full journeyworker compensation.

Six apprentices and two journeyworkers are on site [6:2]

Ratio calls for six apprentices and sixteen journeyworkers [6:16]

The first apprentice on site is considered in ratio as two journeyworkers may only accompany one apprentice; this particular job has six apprentices--the second journeyworker is a mute point.

Correction: the second through sixth apprentices coming on site are paid the full journeyworker compensation.

(6) **Poster Boards**

The prime contractor must construct and display a poster board, which contains all required posters, is legible and is accessible to all workers from the first day of work until the project is 100% complete. Prime contractors are not allowed to place a poster board at an off-site facility location.

(7) **Trucking Issues**

a) For the purpose of sections seven and eight, the term "owner" includes all persons having an ownership interest in the trucking entity or a partnership interest in the trucking entity and has a legal and rightful title to the vehicle(s) or has an approved lease on the vehicle(s). "Operate" means the owner either physically drives the vehicle or hires another to physically drive the vehicle, yet maintains the right to direct the day-to-day operations of the vehicle.

b) **Trucking Operations Definitions:**

Independent Trucking Operator: an individual or partnership who owns or holds a vehicle under lease and who contracts that vehicle and the owner's services to an entity which provides construction services to a public works project. The individual owns or leases and drives the equipment, is responsible for the maintenance of the equipment, bears all operating costs, determines the details and means of performing the services, and enters into a legally binding agreement that specifies the relationship to be that of an independent contractor and not that of an employee.

Multiple Truck Operations: any legal business entity that owns more than one vehicle and hires the vehicles out for services to brokers or contractors on public works projects. The owners of a trucking firm may either drive the vehicles or hire employees to drive the vehicles. Employee drivers are subject to the appropriate prevailing wage rate. The owner driving a vehicle is obligated to account for the value of his/her services as a driver at the appropriate prevailing wage.

Partnerships: a legal business entity where two or more individuals hold vehicles under lease and contract those vehicles and their services to an entity which provides construction services to a public works project. The partners own or lease the equipment, are responsible for maintenance and all operating costs, drive the equipment, determine the details and means of performing the services, and enter a legally binding agreement that specifies the relationship to be that of a partner and not that of an employee. All partners are subject to the appropriate prevailing wage.

Corporation: any legal business entity that owns or leases vehicles to provide construction services to public works projects. All individuals are employees of the corporation and subject to the appropriate prevailing wage regardless of title or position.

Broker: an individual or firm who (activities include, but are not limited to):

- **contracts to provide trucking services** [equipment and driver] in the construction industry to users of such services, such as prime contractors and various subcontractors of the prime;
- **contracts to obtain services** from other trucking operations and dispatches them to various assignments;
- receives payment from the users (such as prime contractors and various subcontractors) in consideration for the trucking services provided; and
- makes payment to the providers (trucking operations so **contracted with**) for their services.

(8) **Specific documentation from trucking operations.**

Independent Trucking Operators

The owner/operator of a truck must submit a copy of his/her commercial driver's license (CDL), cab card, and insurance certificate for each truck the owner/operator drives on each construction project *before commencing work on that project*. These documents must be sent to the prime contractor who will then forward the material to Labor Standards, Engineering Division at the City of Duluth.

Multiple Truck Operators

Weekly certified payrolls and payment of corresponding prevailing wages plus the fringe benefit package will be required for each project where trucks are operating. This covers the owner plus all employees performing work on the project.

Partnerships

Weekly certified payrolls and payment of corresponding prevailing wages plus fringe benefit packages will be required for each project where trucks are operating. This covers all partners of the organization who perform work on the project.

Each partner performing work on a project must submit a copy of his/her commercial driver's license (CDL), cab card, and insurance certificate for the truck being operated with that weekly certified payroll. It is not necessary to repeat such supporting documentation until a different truck is used and/or certificates or licenses have expired.

Employees of the partnership are always reported on a weekly certified payroll and paid the appropriate prevailing wage plus fringe benefit package for the work being performed.

Corporations

All persons employed by the corporation are subject to receive payment of the prevailing wage plus the fringe benefit package for the work performed on a project regardless of title or position. Weekly certified payrolls must be submitted for all work performed on the project.

Brokers

Truck ownership and a **bonafide contract** between the broker and another trucking operation, a prime contractor, or a subcontractor must be identified. Paperwork must be submitted with the month end trucking report to the City of Duluth Labor Standards representative - Engineering. Certified payrolls are not required when the above documentation is provided and approved.

(10) **Month End Trucking Report - ONLY REQUIRED WITH STATE OF MINNESOTA FUNDING**

The Minnesota Department of Transportation Month End Trucking Report (Mn/DOT TP-90550 7-05) and Minnesota Department of Transportation Month End Trucking Report Statement of Compliance (Mn/DOT TP-90551 7-05) are *only required on state funded projects*.

A guide for completing the forms including definitions and the reports, themselves, may be downloaded from:

www.dot.state.mn.us/const/labor/truckinginfo.html

Payment to the prime contractor may be withheld until documentation is received and approved.

(11) **Truck Rental Rates - ONLY REQUIRED WITH STATE OF MINNESOTA FUNDING**

Truck rental rates are listed in the prevailing wage section of the project specifications.

(12) **Minnesota Rules 5200.1105 and 5200.1106**

These rules are incorporated into this supplementary general conditions by reference and are found on these web sites:

www.revisor.leg.state.mn.us/rules/?id=5200

13) **Truck Axles**

Per Minnesota Rules 5200.1100 Master Job Classifications, a truck "unit" refers to all axles including the steering axle. A tag axle is also counted as one of the axles. Examples: four rear axles plus one steering axle = five axles total
one rear axle plus one steering axle = two axles total

(14) **Non-Compliance and Enforcement**

- a) The prime contractor shall be liable for any unpaid wages to its workers or those of its lower-tier subcontractors, trucking companies/Multiple Truck Owners (MTO's) and/or Independent Truck Owner/Operator (ITOs) [MnDOT Standard Specifications for Construction, Section 1801].
- b) See Section 9, MnDOT Specification 1906 Partial Payments.

(15) **IC-134 form - Withholding Affidavit for Contractors**

The IC-134 form will be required from all Multiple Truck Operators, Partnerships, and Corporations performing trucking services on a project before the retainage or all remaining funds can be released. Web site for completing form online: www.mndor.state.mn.us

The form, itself, is found at: www.taxes.state.mn.us/forms/ic134.pdf

(16) **Owners, Supervisors, Foremen listed on certified payrolls.**

All persons working on a City of Duluth project including owners, partners, supervisors, salaried persons, and working foremen who perform laborer and/or mechanic work shall be reported on the weekly certified payroll reports including all data required of any laborer or mechanic. (ordinance 8731, 6/24/85)

(17) **Supporting documentation.**

At his/her discretion, the City of Duluth Labor Standards representative may demand proof of payment of the prevailing wage which may include copies of a payroll register, itemized time sheet and matching cancelled check, or any other supporting documents as stipulated. Payment to the prime contractor may be withheld until documentation is received and approved.

(18) **Kickbacks from Public Works employees prohibited.**

No contractor working on a project or other person shall, by force intimidation, or threat of termination of employment, cause any employee working on a project to give up any part of the compensation to which he is entitled under his contract of employment.

Section 9

**Minnesota Department of Transportation Specification 1906 Partial Payments
Process For "Withholding Contract Monies" and "Default and Termination of a Contract" 11/5/04**

Mn/DOT Specification 1906 Partial Payments describes the Commissioner's authority to withhold funds to protect the Department's interests. In addition, Specification 1808 Default and Termination of a Contract describes the Commissioner's authority to take the prosecution of the work out of the hands of the Contractor.

Additionally, on projects funded in whole or part with federal funds and in accordance with the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding", incorporated into federal aid contracts, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

However, the Department must give the Contractor, and it's Sureties due notice prior to exercising these authorities. The withholding of contract funds, in accordance with Specification 1906 or the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding", should be implemented as soon as a possible prevailing wage violation is recognized. However, Default and Termination of a Contract, in accordance with Specification 1808, should only be exercised as a "last resort" if the Contractor is not willing to comply.

Definitions

(Mn/DOT Standard Specifications for Construction 2000 Edition, Section 1103)

Commissioner: The Commissioner of the Minnesota Department of Transportation, or the chief executive of the department or agency constituted for administration of Contract work with its jurisdiction.

Contractor: The individual, firm or corporation Contracting for and undertaking prosecution of the prescribed work; the party of the second part to the Contract, acting directly or through a duly authorized representative.

Department: The Department of Transportation or the State of Minnesota, or the political subdivision, governmental body, board, commission, office, department, division, or agency constituted for administration of the Contract work within its jurisdiction.

(Form 1273 - 29 CFR, Part 5.1, Definitions)

Contracting Officer: The individual, a duly appointed successor or authorized representative who is designated and authorized to enter into Contracts on behalf of the Federal Agency and/or the City of Duluth.

Important Considerations

1. Upon completion of the work under a contract, the department should consider issuing the final voucher as soon as possible. Failure to finalize a contract expeditiously could result in subsequent claims that would prevent the department from finalizing the contract. However, before the issuance of the final voucher, the department must be able to ensure that the terms of the contract have been satisfied. Failure on the part of the department to ensure compliance could result in the Mn/DOT state aid division retaining funds from the department in accordance with *Minnesota Rules 8820.3000, subpart 5*.
2. On every contract, the department should withhold the final retainage in accordance with the following guidelines: (1) if the total amount of the contract is \$1,000,000 or more, the department should retain funds not more than \$50,000, (2) if the total amount of the contract is less than \$1,000,000, the department should retain 5% of the total contract, (3) retainage should be withheld until the department can ensure that the contractor has met the terms of the contract or until the finalization of the contract.
3. This guide specifies that the department verbally notify the bonding company early in the process. Generally, as a "rule of thumb", notifying the bonding company is usually the "last resort". However, the justification for the early notification is related to the language found in *Minnesota statute 574.31, subdivision 2*, which summarizes that if an individual or the department does not submit a claim on the payment bond within 120 days after the completion of work under the contract, the claim can be denied.

The following are general guidelines that should be followed prior to placing a Contractor in default:

- Step 1: Upon verbal or written notification that a possible prevailing wage violation exists, the Department should give written notice to the Contractor regarding the nature of the claim, along with the Department's intent to withhold monies until the claim is investigated and determined to be in compliance. Additionally, the Department should inform the Contractor that the bonding company has been verbally notified of the claim. Please be aware, the Department should ensure employee confidentiality at all times.

- Step 2: Upon a preliminary determination surrounding the financial extent of the claim, the Department should consider retaining a "reasonable" portion of one or more partial estimates in accordance with Mn/DOT's 2000 Standard Specifications for Construction, Section 1906; or on federal aid contracts, in accordance with the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding".
- Step 3: If it is determined that the claim is valid, the Department should schedule a meeting with the Contractor and attempt to resolve the matter. If the claim is determined to be invalid, the Department should release any partial estimates that may have been held as a result of the claim. However, the Department should continue to withhold the final retainage in accordance with the above-mentioned: Important Considerations, 2.
- Step 4: If resolution cannot be obtained through a meeting, the Department should order the Contractor, in writing, to complete their obligations under the contract. The letter should clearly state the circumstances under which the Department has deemed that the Contractor has not met the terms of the contract. Additionally, the Department should include a reasonable deadline for this obligation to be completed. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 5: In the event that the Contractor does not respond to the Department's written order, the Department should send a similar letter, requesting that the Contractor respond immediately, in writing, regarding the Contractor's intention to comply or not comply with the order. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 6: If the Department still does not get a proper response from the Contractor, the Department should write another letter, addressed to both the Contractor and the Surety, specifying all the facts of the alleged breach, demanding that the Contractor, or its Surety, respond satisfactorily within 10 days or the Department may exercise its authority to Default and Terminate the Contract in accordance within/DOT's 2000 Specifications for Construction, Section 1808. It's important to provide sufficient detail so that the Surety understands the situation. This notification should be sent by certified mail. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 7: If the Contractor or Surety is unresponsive after 10 days, the Department should consult with their attorney to consider proceeding with Default and Termination of the Contract.
- Step 8: Upon termination of the contract, the Department provides a written order to the Surety, requiring the Surety to bring resolution to the prevailing wage violation.
- Step 9: The Department places the Contractor on a Non-Responsible Bidder's List and rejects any future awards.

Section 10

Federal Labor Standards Provisions U.S. Department of Housing and Urban Development Office of Labor Relations
Previous editions are obsolete Page 1 of 5 form HUD-4010 (06/2009) ref. Handbook 1344.1

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part Previous editions are obsolete Page 2 of 5 form **HUD-4010** (06/2009) ref. Handbook 1344.1 of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract in the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section (b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section (b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract; but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

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(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training

Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to, and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

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the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

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(3) **Withholding for unpaid wages and liquidated damages.** HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Section 11

Equal Opportunity Laws and Regulations

(A) In addition to Contract specifications set forth below, the Contractor shall conduct and administer this Contract in compliance with:

- (1) Title VI of the Civil Rights Act of 1964 (Pub. L. 88-352) and implementing regulations issued at 24 CFR Part 1;
- (2) Title VIII of the Civil Rights Act of 1968 (Pub. L. 90-284), as amended, and implementing regulations;
- (3) Section 109 of the Housing and Community Development Act of 1974, as amended; and the regulations issued pursuant thereto (24 CFR Section 570.601);
- (4) Section 3 of the Housing and Urban Development Act of 1968, as amended, and implementing regulations of 24 CFR Part 135;
- (5) Executive Order 11246, as amended by Executive Order 11375 and 12086 and implementing regulations at 41 CFR Chapter 60;
- (6) Executive Order 11063, as amended by Executive Order 12259 and implementing regulations at 24 CFR Part 107;
- (7) Section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112), as amended, and implementing regulations when published for effect;
- (8) The Age Discrimination Act of 1975, as amended, (Pub. L. 94-135) and implementing regulations when published for effect;
- (9) The Minnesota Human Rights Act of 1974, as amended (Chapter 363).

Equal Opportunity and Affirmative Action

(A) Contractors and Subcontractors that have a work force in excess of fifty (50) employees and a contract in excess of \$50,000.00 shall prepare and maintain an appropriate affirmative action plan in accordance with the provisions of 41 CFR 60 "Compliance Responsibility for Equal Opportunity".

(B) **Non-segregated Facilities.** The Contractor shall certify that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Contractor covenants that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. As used in this paragraph the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, creed, religion, national origin, ancestry, age, marital status, status with respect to public assistance, and/or disability because of habit, local custom, or otherwise.

General Provisions Against Discrimination

(A) In all hiring or employment made possible by or resulting from this Contract, there:

- (1) will not be any discrimination against any employee or applicant for employment because of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability.
- (2) affirmative action will be taken to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. This requirement shall apply to, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; lay-off or termination; rates of pay or other

forms of compensation; and selection for training, including apprenticeship. There shall be posted in conspicuous places available to employees and applicants for employment, notices setting forth the provisions of this clause. All solicitations or advertisements for employees shall state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability.

(B) No person in the United States shall, on the grounds of race, color, creed, religion, national origin, age, sex, marital status, status with respect to public assistance, and/or disability, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity made possible by or resulting from this Contract. The Contractor and each employer will comply with all requirements imposed by or pursuant to the regulations of the Federal Agency effectuating Title VI of the Civil Rights Act of 1966. The Contractor will note this requirement in all solicitations or advertisements for employees. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(C) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the Contractor's commitments under these provisions, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(D) The Contractor hereby agrees that he will incorporate into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained pursuant to this Contract, the equal opportunity clause which is a part of these Contract Documents.

(E) The Contractor further agrees that he will be bound by the equal opportunity clause and other provisions of 41 CFR Chapter 60, with respect to his own employment practices when he participates in federally assisted construction work: **Provided:** That of the Contractor so participating is a State or Local Government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the Contract. Also, the Contractor will make his files available to inspection by appropriate government agencies and shall furnish those reports as may be required by said agencies.

(F) The Contractor agrees that he will assist and cooperate actively with the Federal Agency and the Secretary of Labor in obtaining the compliance of subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that he will furnish the Federal Agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that he will otherwise assist the Federal Agency in the discharge of its primary responsibility for securing compliance.

(G) The Contractor further agrees that he will refrain from entering into any contract or any contract modification subject to Executive Order 11246 of September 24, 1965, with a subcontractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order. In addition, the Contractor agrees that if he fails or refuses to comply with these undertakings, the City or the Federal Agency may take any or all of the following actions: Terminate or suspend in whole or in part this Contract; refrain from extending any further assistance to the Contractor under the Project with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such Contractor and refer the case to the Department of Justice for appropriate legal proceedings.

Affirmative Action - "Construction Contracts" over \$10,000

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

<u>Timetables</u>	<u>Goals for minority participation (percent)</u>	<u>Goals for female participation (percent)</u>
From April 1, 1980 until revised	3.0	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the City and to the Director of the Office of Federal Contract Compliance Programs; U.S. Department of Labor, ESA/OFCCP, 16th Floor, 230 South Dearborn Street, Chicago, Illinois, 60604, within 10 working days of award of any construction subcontract and/or subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the contractor and/or subcontractor; employer identification number; estimated dollar amount of the prime contract; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the Contract, the "covered area" is all work under a contract currently held with the City of Duluth, Minnesota.

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:

- a) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor; or any person to whom the Director delegates authority;
- b) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- c) "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

- (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
- (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notices of these programs to the sources compiled under 7b above.

- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

- h. Disseminate the Contractor's EEO policy externally by including it any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitments and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of officers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, creed, religion, national origin, sex, ancestry, age, marital status, status with respect to public assistance and/or disability.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Affirmative Action for Handicapped Workers

(applies to contracts in excess of \$2,500)

(A) The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: Employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(B) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(C) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(D) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

(E) The Contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

(F) The Contractor will include the provisions of this clause in every subcontract or purchase order of \$2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era

(applies to contracts in excess of \$10,000)

(A) The Contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran or veteran of the Vietnam era in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veterans status in all employment practices such as the following: Employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(B) The Contractor agrees that all suitable employment openings of the Contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the Contractor other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be listed at an appropriate local office of the State employment service system wherein the opening occurs. The Contractor further agrees to provide such reports to such local office regarding employment openings and hires as may be required.

State and local government agencies holding Federal contracts of \$10,000 or more shall also list all their suitable openings with the appropriate office of the State employment service, but are not required to provide those reports set forth in paragraphs (D) and (E).

(C) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment source or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and non-veterans. The listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job applicants, and nothing herein is intended to relieve the Contractor from any requirements in Executive Orders of regulations regarding nondiscrimination in employment.

(D) The reports required by paragraph (B) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the Contractor has more than hiring location in a State, with the central office of that State employment service. Such reports shall indicate for each hiring location (1) the number of individuals hired during the reporting period, (2) the number of non-disabled veterans of the Vietnam era hired, (3) the number of disabled veterans of the Vietnam era hired, and (4) the total number of disabled veterans hired. The reports should include covered veterans hired for on-the-job training under 38 U.S.C. 1787. The Contractor shall maintain at each hiring location copies of the reports submitted until the expiration of one year after final payment under the contract, during which time these reports and related documentation shall be made available, upon request, for examination by any authorized representatives of the contracting officer of the Secretary of Labor. Documentation would include personnel records respecting job openings, recruitment and placement.

(E) Whenever the Contractor becomes contractually bound to the listing provisions of this clause, it shall advise the employment service system in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these provisions, and has so advised the State system, there is no need to advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(F) This clause does not apply to the listing of employment openings which occur and are filled outside of the 50 States, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

(G) The provisions of paragraphs (B), (C), (D), and (E) of this clause do not apply to openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement for that opening.

(H) As used in this clause:

(1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories: Production and non-production; plant and office; laborers and mechanics; supervisory and non-supervisory; technical; and executive, administrative, and professional openings as are compensated on a salary basis of less than \$25,000 per year. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment. It does not include openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement nor openings in an educational institution which are restricted to students of that institution. Under the most compelling circumstances an employment opening may not be suitable for listing, including such situations where the needs of the Government cannot reasonably be otherwise supplied, where listing would be contrary to national security, or where the requirement of listing would otherwise not be for the best interest of the Government.

(2) "Appropriate office of the State employment service system" means the local office of the Federal-State national system of public employment offices with assigned responsibility for serving the area where the employment opening is to be filled, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

(3) "Openings which the Contractor proposes to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the Contractor's organization (including any affiliates, subsidiaries, and the parent companies) and includes any openings which the Contractor proposes to fill from regularly established "recall" lists.

(4) "Openings which the Contractor proposes to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings which the Contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the Contractor and representatives of his employees.

(I) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(J) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(K) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era for employment, and the rights of applicants and employees.

(L) The Contractor will notify each labor union representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of the Vietnam Era Veterans Readjustment Assistance Act, and is committed to take affirmative action to employ and advance qualified disabled veterans and veterans of the Vietnam era.

(M) The Contractor will include the provisions of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

Section 12

Employment Opportunities - "HUD Section 3"

General

These requirements apply to the City of Duluth contracts receiving assistance under the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG) Program.

Type of Covered Projects

24CFR570.607 (b) of the HUD CDBG Program Regulations state in part "... that employment and other economic opportunities arising in connection with housing rehabilitation, housing construction, or other public construction projects shall to the greatest extent feasible, and consistent with existing Federal, State, and local laws and regulations be given to low- and very low-income persons.

Thresholds

In accordance with the provisions of 24CFR135.3(a) (3) (ii) (A), the requirements of this Section apply to those recipients as defined at 24CFR135.5 when the amount of this contract exceeds \$200,000.

In addition, in accordance with the provisions of 24CFR135.3 (a) (3) (ii) (B), the requirements of this Section apply to any contractor or subcontractor whose contract exceeds \$100,000 as a result of assistance provided under this contract.

Requirements (Section 3 Clause)

(A) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(B) The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

(C) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement, or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(D) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

(E) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligation under 24 CFR part 135.

(F) Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD-assisted contracts.

Section 13

Federal Requirements for Minority/Women Business Enterprises Contract Guidance - MPFA

General

Municipalities that receive loan funding must comply with Federal requirements concerning utilization of Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE). These requirements are designed to encourage the prime contractors to utilize MBEs and WBEs whenever procurement opportunities occur.

Regulation

40 C.F.R. Section 35.3145(d) Application of other Federal Authorities, M/WBE Requirements

Executive Orders No. 11625, 12138 and 12432 - Promoting the use of M/WBEs

Section 129 of Public Law 100-590 - Small Business Administration Reauthorization and Amendment Act of 1988

Regulations detailed in the EPA's *Cross-Cutting Federal Authorities - Clean Water Act State Revolving Fund Program and Safe Drinking Water Act State Revolving Fund Program*

Implementation

The "fair share" target percentage participation proposed for this project is 3.5 percent (3.5%) for MBE and 11.5 percent (11.5%) for WBE.

If the Contractor intends to let any subcontractors for a portion of the work, the Contractor shall take affirmative steps to assure that minority and women businesses are utilized when possible as sources of supplies, equipment, construction and services. Affirmative steps shall include the following:

- a) Include qualified minority businesses on solicitation lists.
- b) Assure that minority businesses are solicited whenever they are potential sources.
- c) When economically feasible, divide total requirements into smaller tasks or quantities so as to permit maximum small and minority business participation.
- d) Where the requirement permits, establish delivery schedules, which will encourage participation by minority businesses.
- e) Use the services and assistance of the Office of Minority Business Enterprise of the Department of Commerce.

The low bidder will be required to submit to the City of Duluth documentation of his good faith efforts to meet the targeted goals of utilizing MBEs and WBEs.

Section 14 - Forms

Minnesota Department of Transportation and City of Duluth, Minnesota funded certified payroll forms

- Statement of Compliance Form
www.dot.state.mn.us/const/labor/lcuforms.html
- Certified Payroll Forms
<http://www.dol.gov/whd/forms/wh347.pdf>
use front side only

U. S. Department of Housing and Urban Development and federal government funded certified payroll forms

- Statement of Compliance Form & Certified Payroll Forms
<http://www.dol.gov/whd/forms/wh347.pdf>
(use reverse side for Statement of Compliance form)
- Fringe Benefit Form - use the second page of the MnDOT Statement
of Compliance (form 21658 8/08)
www.dot.state.mn.us/const/labor/lcuforms.html

Minnesota Department of Transportation Trucking Requirements

- Month End Trucking Report
- Month End Trucking Report Statement of Compliance
- Definitions and instructions:
www.dot.state.mn.us/const/labor/lcuforms.html

**City of Duluth
&
Duluth Airport Authority**

Insurance Requirements

(Updated May 13, 2010)

INDEMNIFICATION CLAUSE

Contractor agrees to defend, save harmless, and indemnify the City of Duluth and Duluth Airport Authority, its agents and employees from any loss, cost, or damage by reason of Personal Injury or Property Damage of whatsoever nature or kind arising out of, or as a result of, the performance of the work by the Contractor, its employees, agents, or subcontractors. On ten days' written notice from the City of Duluth or Duluth Airport Authority, Contractor will appear and defend all lawsuits against the City of Duluth and/or Duluth Airport Authority growing out of such injuries or damages

INSURANCE

Contractor shall provide Public Liability and Automobile Liability Insurance with limits not less than \$1,500,000 Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be with a company approved by the City of Duluth and Duluth Airport Authority; and shall provide for the following; Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.

City of Duluth and the Duluth Airport Authority shall be named as Additional Insureds under the Public Liability, Excess/Umbrella Liability,* and Automobile Liability, or as an alternate, Contractor may provide Owners-Contractors Protective policy, naming itself and the City of Duluth and Duluth Airport Authority. Contractor shall also provide evidence of Statutory Minnesota Worker's Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-days notice of cancellation, non-renewal or material change provisions included. The City of Duluth or Duluth Airport Authority do not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.

If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer must notify the City of Duluth and Duluth Airport Authority without fail not less than 30 days prior to any cancellation, non-renewal or modification of the policy or coverage's evidenced by said certificate and shall further provide that failure to give such notice to the City of Duluth and Duluth Airport Authority will render any such change or changes in said policy or coverages ineffective as against the City of Duluth and Duluth Airport Authority.

The use of an "Acord" form as a certificate of insurance shall be accompanied by two forms – 1) ISO Additional Insured Endorsement (CG 2010 pre 2004); and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney's Office. (See attached examples of Endorsements).

**An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth and Duluth Airport Authority as additional insureds.*

On ten days' written notice from the City of Duluth or Duluth Airport Authority, Contractor will appear and defend all lawsuits against the City of Duluth and/or Duluth Airport Authority growing out of such injuries or damages.

PRE-2004 CG 2010

- A. **Section II - Who Is an Insured** is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

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NOTICE OF CANCELLATIONS ENDORSEMENT

IL-7002 (10-90)

All Coverage Parts Included in this policy are subject to the following condition: If we cancel this policy for any reason other than nonpayment

of premium, we will mail advance notice to the person(s) or organization(s) as shown in the Schedule.

SCHEDULE

<u>Person or Organization (Name and Address)</u>	<u>Advance Notice (Days)</u>
City of Duluth Purchasing Div Room 100 City Hall 411 West First Street Duluth, MN 55802	30

Procedure verified by:

Don Douglas, Claims Adjuster
Duluth City Attorney's Office

Date _____

**EQUAL EMPLOYMENT OPPORTUNITY (EEO) AFFIRMATIVE
ACTION POLICY STATEMENT & COMPLIANCE CERTIFICATE**

TO: City of Duluth, Minnesota PROJECT: _____

FROM: _____

(FIRM'S Name, Address, Telephone Number)

- A. Employment:** It is the policy of the above named FIRM to afford equal opportunity for employment to all individuals regardless of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. The FIRM will take affirmative action to ensure that we will, (1) recruit, hire and promote all job classifications without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability, except where sex is a bona fide occupational qualification; (2) base decisions on employment so as to further the principle of equal employment opportunity; (3) ensure that promotion decisions are in accord with the principles of equal employment opportunity by imposing only valid requirements for promotional opportunities; (4) ensure that all personnel actions such as compensation, benefits, transfers, layoffs, return from layoff, FIRM sponsored training, education tuition assistance, social and recreational programs will be administered without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. The FIRM also intends full compliance with Veteran affirmative action requirements. Additionally, minority and female employees shall be encouraged to participate in all FIRM activities and refer applicants.

I have designated (name)_____ to direct the establishment of and to monitor the implementation of personnel procedures to guide the FIRM's affirmative action program. Where PROJECTS exceed \$500,000, this official shall also serve as the liaison officer that administers the FIRM's "Minority Business Enterprise Program". This official is charged with designing and implementing audit and reporting systems that will keep management informed on a monthly basis of the status of the equal opportunity area.

Supervisors have been made to understand that their work performance is being evaluated on the basis of their equal opportunity efforts and results, as well as other criteria. It shall be the responsibility of the FIRM and its supervisors to take actions to prevent harassment of employees placed through affirmative action efforts.

- B. Reports:** Unless exempted by law and regulation, the FIRM shall make available and file those reports related to equal opportunity as may be required by the City of Duluth and State and Federal compliance agencies. Requirements and Reports are defined in 41CFR60 “Compliance Responsibility for Equal Opportunity” published by the U.S. Department of Labor which is incorporated herein by reference. Additional requirements are defined in various State and Federal Civil Rights Legislation and Rules promulgated thereunder.
- C. Nonsegregated Facilities:** The FIRM certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM certifies that it will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this certificate. As used in this Certification, the term “segregated facilities” means any waiting rooms, work area, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation for entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom or otherwise.
- D. Affirmative Action Compliance Program:** Unless exempted by regulation and law, the FIRM if the FIRM has 50 or more employees and if the value of current contracts with the City of Duluth exceeds \$50,000 shall prepare and maintain a written affirmative action compliance program that meets the requirements as set forth in 41CFR60.
- E. Non-compliance:** The FIRM certifies that it is not currently in receipt of any outstanding letters of deficiencies, show cause, probable cause, or other such notification of non-compliance with EEO Laws and Regulations.
- F. Employment Goals - “Construction” Projects:** It shall be the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the on-site workforce will be minority employees and that no less than 7% of the on-site workforce will be female employees. Further, it is the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the work hours generated shall be worked by minority employees and that no less than 7% of the work hours generated shall be worked by female employees.

- G. Subcontractors:** The FIRM will for all its PROJECT subcontractors regardless of tier (unless exempted by law and regulation) that received in excess of \$2,500 will require that; (1) the subcontractor shall execute an “EEO Statement and Certification” similar in nature to this “Statement and Certification” (2) said documentation to be maintained on file with the FIRM or subcontractor as may be appropriate.

Executed this _____ day _____ 19____ by:

(Printed Name & Title)

(Signature)

NOTE: In addition to the various remedies prescribed for violation of Equal Opportunity Laws the penalty for false statements is prescribed in 18 U.S.C. 1001.

Construction Safety and Security Compliance
For
Aircraft Operations Area
Duluth International Airport
Duluth, Minnesota
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I. AIRPORT EMERGENCY NUMBERS

EMERGENCY TELEPHONE NUMBER

911

FOR

POLICE FIRE RESCUE

AIRPORT NONEMERGENCY NUMBERS

DULUTH AIRPORT AUTHORITY

Airport Office	(M – F 08:00 – 16:30)	727 – 2968 727 – 2960 (fax)
Airport Security	(24 Hours)	391 – 5631 (cell) 726 – 4984 (pager)
Executive Director	Brian Ryks	391 – 8052 (cell)
Operations Director	Brian Grefe	590 – 8606 (cell)
Airside Manager	Dan Mini	391 – 6155 (cell)
Airport Garage		727 – 6522
Electrical Vault		391 – 5697 (cell)

II. CONSTRUCTION SAFETY FOR DULUTH AIRPORT AUTHORITY

This manual provides general information to Contractors on the requirements and procedures for accident prevention, safety, security, and loss control for the Duluth Airport Authority (DAA) construction, repair, or services required by the DAA and its tenants. The DAA's safety objective is to achieve accident-free construction projects.

Contractors are charged with the responsibility for conducting their operations in a manner that will provide safe working conditions for all employees and the protection of the public and all others who may come in contact with or be exposed to this project. Nothing contained in this manual is intended to relieve any Contractor or supplier of the obligations assumed by the Contractor under contract with the DAA or as required by law.

Safety must be an integral part of each job. Full participation, cooperation, and support is necessary to ensure the safety and health of all persons and property involved in the project.

The purpose of marking, barricading, and lighting airside construction areas is to delineate hazardous areas and prevent unauthorized incursions into the area by personnel, vehicles, equipment, and aircraft during construction.

The limits of the Duluth International Airport, hereafter referred to as "the Airport," are defined as follows:

The Aircraft Operating Area (AOA), for the purpose of this document, is defined as any part of the Airport utilized for aircraft operations and includes any area inside the perimeter fence.

The Aircraft Movement Area (AMA) is defined as runways, taxiways, and other areas of the Airport that are utilized for taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. The AMA is a restricted area. All vehicle and pedestrian access is prohibited without the approval of the Airport and FAA Air Traffic Control.

The DAA reserves the right to review the Contractor's safety program/record and periodically inspect work sites for compliance.

III. SAFETY AREAS

Runways and taxiways have safety areas. The safety area dimensions at Duluth International Airport extend 1,000 feet beyond each runway end and 255 feet perpendicular to the runway centerline.

A. Design Standards

The runway and taxiway safety areas shall be:

1. Cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations.
2. Drained by grading or storm sewers to prevent water accumulation.
3. Capable under dry conditions of supporting construction and maintenance equipment, aircraft rescue, fire-fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.
- (4) Free of objects, except for objects that need to be located in the runway safety area because of their functions. These objects shall be constructed on low impact resistant supports (frangible mounted structures) to the lowest practical height with the frangible point no higher than 3 inches. Other objects, such as manholes, should be constructed at grade. In no case should their height exceed 3 inches above grade.

(5) Restricted Areas

Object Free Area (OFA), Obstacle Free Zone (OFZ), Primary Surface and Transitional Surface.

1. Runway and Taxiway Surfaces. When aircraft operations are being conducted on a runway or taxiway, construction activity is prohibited within any of the above listed areas, as defined in the FAA's Advisory Circular (AC) 150/5300-13, current edition, unless approved on a case-by-case basis by the DAA, where construction equipment and material is properly marked and lighted.

These restricted areas vary depending on runway or taxiway design group. A taxiway OFA extends out to 129.5' from the centerline for group IV aircraft and 160' for group V.

A runway primary surface extends out to 500' from a runway centerline and the transitional surface begins a 7' to 1' outward and upward slope up to 150'. Any equipment in these areas must be approved by the DAA.

When working near a runway or taxiway ask for assistance in defining these areas before work begins.

2. Approach Surfaces. When aircraft operations are being conducted near a runway, construction activity is prohibited to penetrate the surfaces, defined in AC 150/5300-13, unless approved by the DAA. The runway threshold may be relocated or displaced to eliminate the penetration.

C. Taxiways and Aprons

Construction activity may be safely permitted within safety areas of taxiways and on aprons in use provided the activity is first coordinated with the DAA, local notice to airmen (NOTAM's) are issued, marking and lighting provisions are implemented, and it is determined that the height of equipment and materials is safely below any part of the aircraft using the AOA that might overhang those areas. The taxiway centerline shall be maintained when construction activity is conducted adjacent to an active taxiway, a minimum clearance of 25 feet plus one half the wingspan of the largest predominant aircraft (currently 767-400) from the centerline of an active taxiway or apron, which is 108 feet.

IV. FLAGGERS AND OBSERVERS

All flaggers will be trained and approved by the DAA prior to working on the Airport.

A. Communications

All flaggers and observers controlling equipment crossing active aircraft areas will be required to have a cellular telephone or DAA approved radio to contact the DAA to report any problems that may affect aircraft operations. All observers and flaggers will immediately contact the DAA if any equipment or vehicle becomes disabled or is unable to yield to aircraft for any reason.

B. Crossings

If approved by the DAA, vehicle and pedestrian crossings of active runways, taxiways and high-use or congested ramp areas may be permitted if the following provisions are met:

1. The DAA is notified before any activity begins and when the activity ends every day.
2. DAA has coordinated the activity with Air Traffic Control and has advised the Engineer or Contractor when to begin crossings.
3. An airport representative is available to contact Air Traffic Control if there are any problems.
4. All involved personnel understand that all equipment and pedestrians must yield to all aircraft. **Aircraft always have the right of way.**

V. CONSTRUCTION LIMIT BOUNDARIES

A. Setback Lines

Visible setback lines will be established prior to construction activity taking place adjacent to active taxiways and aprons. All vehicles, equipment, and construction activity must stay beyond these lines unless provisions are made with DAA and Engineering personnel. Locations where setback lines will be placed is determined by the Airport's largest predominant aircraft (Boeing 767-400), and setback lines will be located at 108 feet from the taxiway or apron centerline.

At the discretion of DAA and Engineering personnel, setback lines will be delineated according to the scope and timeframe of each project. Short-term projects involving limited personnel may be delineated with spray paint and/or wooden laths. For projects involving numerous personnel and subcontractors, setback lines will be delineated with rubber-based upright delineators with rope or ribbon extended between delineators. Contractors will be responsible for maintaining setback lines in a clearly visible condition until project completion.

If approved by the DAA, construction may be permitted within the setback lines if the following provisions are met:

1. A designated observer/spotter (other than the equipment operator) is on the site to direct the operator and equipment to yield to oncoming aircraft. The observer/spotter must be able to immediately get the attention of the operator and direct equipment beyond the setback lines. Equipment must be in position to immediately respond.
2. It is determined by DAA and Engineering personnel that the height of the equipment and materials is safely below any part of the aircraft using the AOA that might overhang those areas.
3. Vehicles and equipment are under escort by DAA or Engineering personnel that are in contact with the air traffic control tower or if equipment is being directed by a DAA approved flagger or observer/spotter.

If the above-stated provisions cannot be met, construction activity will not be allowed until a taxiway/apron closure can be scheduled with Air Traffic Control.

B. Trenches, Excavations, and Stockpiled Material

Open trenches exceeding 3 inches in depth and 3 inches in width or stockpiled material will not be permitted within the limits of safety areas of operational runways. Coverings for open trenches or excavations shall be of sufficient strength to support the weight of the heaviest aircraft operating on the runway or taxiway. Lightweight barricades and/or flagging should be used to identify the limits of construction near open trenches or excavations.

C. Equipment Height

Construction activity shall be prohibited when equipment penetrates any obstacle free zone (OFZ) as defined in the FAA's AC 150/5300-13, current edition, unless a favorable airspace finding has been made by the FAA and the DAA, and approved by the DAA. Equipment must display a checkered flag during daytime use and a yellow flashing beacon during nighttime use.

D. Proximity of Construction Activity to Navigational Aids

Construction activity in the vicinity of navigational aids requires special consideration. The effect of the activity and its permissible distance and direction from the aid must be evaluated in each instance. A coordinated evaluation by DAA and the FAA is necessary. Technical involvement by FAA airports, air traffic, and airway facilities specialists is needed as well as construction engineering and management input. Particular attention needs to be given to stockpiling materials and movement and parking of equipment that may block the line of sight from the tower or interfere with electronic signals.

E. Construction Vehicle Traffic

Because each construction situation differs, the Contractor must coordinate construction vehicle traffic with the DAA.

F. Limitations of Construction

1. Open-flame welding or torch-cutting operations will be prohibited unless adequate fire and safety precautions are provided.
2. Open trenches, excavations, and stockpiled material at the construction site should be prominently marked and lighted by barricades (acceptable to the DAA and the FAA) during hours of restricted visibility and/or darkness. Under no circumstances are flare pots to be used for airport lighting.

Some temporary back filling of open trenches may be required.

3. Stockpiled material should be constrained in a manner to prevent movement resulting from aircraft blast or wind conditions. Material should not be stored near aircraft turning areas.

G. Marking and Lighting of Closed or Hazardous Areas on the Airport

When areas on the Airport are closed or present hazards due to construction activities, they should be marked and lighted according to AC 150/5340. Marking and lighting must be approved by the DAA.

If construction involves an extended closure of a runway, an illuminated cross ("X") shall be required at each end and shall be serviced and maintained by the Contractor. (The lighted cross ["X"] shall be provided by the Contractor.)

The dimensions of the safety area and obstacle free zones vary and will be stipulated in the specifications. If runway and taxiway closures are necessary, construction may be limited to nighttime, requiring 24-hour prior coordination.

All work in the AMA and safety area is to be coordinated with the DAA.

VI. AIRCRAFT SAFETY CONSIDERATIONS

The Contractor will be required to coordinate work so as to satisfy clearance requirements for arrival and departure of scheduled aircraft and maintain compliance with the FAA's AC 150/5370-2 current edition, "Operational Safety on Airports During Construction." The AC sets forth guidelines for maintaining desired levels of operational safety during construction. All construction personnel should become familiar with the contents of this AC, including Appendix 1, "Special Safety Requirements During Construction."

A. Potential Hazards

Potential hazards include the following:

1. Excavation adjacent to runways, taxiways, and aprons.
2. Mounds of stockpiles of earth, construction material, temporary structures, and other obstacles in proximity to airport operations areas and approach zones.
3. Runway surfacing projects resulting in excessive lips greater than 1 inch for runways and 3 inches for edges between old and new surfaces at runway edges and ends.

4. Heavy equipment, stationary or mobile, operating or idle near the AOA or in safety areas.
- (6) Proximity of equipment or material that may degrade radiated signals or impair monitoring of navigational aids.
6. Tall but relatively low visibility units, such as cranes, drills, and the like, in critical areas such as safety areas and approach zones.
7. Improper or malfunctioning lights or unlighted airport hazards.
8. Holes, obstacles, loose pavement, trash, and other debris on or near the AOA.
9. Failure to maintain fencing during construction to deter human and animal incursion into the AOA.
10. Open trenches alongside pavement.
11. Improper marking or lighting of runways, taxiways, and displaced thresholds.
12. Attractions for birds, such as trash, grass seeding, or ponded water on or near airports.
13. Inadequate or improper methods of marking temporarily closed airport operations areas, including improper and unsecured barricades.
14. Obliterated markings on active operation areas.

NOTE: Safety area encroachments, improper ground vehicle operations, and unmarked or uncovered holes and trenches in the vicinity of aircraft operating surfaces are the three most recurring threats to airside safety during construction.

B. Aircraft Emergency

In the event of an aircraft emergency, the Contractor's personnel and/or equipment may be required to immediately vacate the area.

VII. GENERAL SAFETY ISSUES

A. General

1. The Contractor must, at all times, conduct the work in conformance with requirements of the DAA, the FAA, and the TSA.

2. Aircraft traffic will continue to use existing runways, aprons, and taxiways of the Airport during the time that work under a contract is being performed. The Contractor shall at all times so conduct the work as to create no hindrance, hazard, or obstacle to aircraft using the Airport.
3. Runway closures, when authorized, are coordinated and approved by the DAA. The Contractor will schedule and organize the work so that a minimum of closings or crossings of runways and taxiways will be required during this project.
4. All construction-related activity taking place within any active area of the AMA requires the presence of a DAA or Engineer escort having radio communication with the FAA control tower. Spotters and/or flaggers having radio or telephone contact with the DAA may be used with the approval of the DAA. Any command or instruction given by the control tower, the DAA, the Engineer, flaggers, or spotters shall be immediately obeyed.
5. The Contractor may be working in an active AOA in which jet takeoff noise can be as high as 120 decibels. All Contractors shall comply with industry standards for personnel hearing protection when working within these areas.
6. Airport environment requires a high degree of care to control debris and dust. Spilled material on active roadways, taxiways, runways, and aprons shall be swept up immediately. The Contractor shall be aware that the AOA is subject to jet blasts, which are equivalent to wind velocities of 75 to 90 miles per hour; therefore, constant dust control measures will be required to prevent loose material from blowing across the airfield.
7. Sanitary facilities shall be provided at appropriate locations for the Contractor's employees. Public facilities at the Airport are not to be used.
8. The speed limit on all airside roadways is 25 miles per hour unless otherwise posted. The speed limit on the aprons is 15 mph. (speed limit within 50 feet of an aircraft is 5 mph.)
9. Peak hours for the AOA are from 06:00 to 23:00. Non-peak hours are defined as the period from 23:00 to 06:00.
10. All personnel operating a motor vehicle within the secured area shall have a valid, state issued drivers license.
11. Maximum convoy length shall not exceed three vehicles plus the escort vehicle. The three vehicles must be in the immediate control of the escort vehicle.
12. Use of audio earphones and headsets are prohibited on the AOA unless directly related to job requirements.

13. All Contractor vehicles and equipment operating in the AOA not being escorted must display checkered flags during daytime use and yellow flashing beacons during nighttime use. The flag should be on a staff attached to the vehicle and should be at least a 3 foot square having a checkered pattern of International Orange and White squares at least one (1) foot on each side.
14. Approved Airport, tenants or Contractor vehicles properly equipped may be used to escort up to three vehicles onto the AOA. The vehicle providing the escort must lead and is responsible for the trailing vehicle(s).

It is acceptable for a person displaying an airport-issued ID to provide pedestrian escort for vehicles; however, this is only allowed within 100 feet of the gate. Under no circumstances may a badge employee provide an escort from inside an unmarked vehicle.
15. Beacons and flags must be maintained in good working condition, and flags will be replaced if they become faded, discolored, or ragged.
16. Construction projects affecting any aircraft operation area will be inspected by DAA prior to construction personnel and cleanup equipment leaving the area.
17. All electrical wire, cable, rope, trenches, holes, or any other object or surface variation that may interfere with or be damaged by airport field mowers or other equipment must be marked and/or barricaded to clearly denote the object or area.
18. Manholes, drain inlets and junction boxes must have approved covers in place at all times or they must be barricaded to clearly denote the uncovered opening.

B. Fines and Warnings

Safety and security precautions are necessary at Airports. Failure of the Contractor to adhere to prescribed requirements may have consequences that jeopardize the health, safety or lives of customers and employees at the Airport. Therefore, if the Contractor is found to be in violation of safety, security or badging/licensing requirements, the Contractor may be shutdown or removed from the Airport.

The DAA has the option to issue warnings on an offense based upon the circumstances of the incident. Individuals involved in non-compliance violations may be required to surrender their DAA ID badges pending investigation of the matter.

Penalties for violations related to DAA procedures may include the following:

1. Warning, DAA ID badge confiscation, retraining, and a letter from the employer stating what action if any has been taken to prevent reoccurrence.

2. Project shutdown and/or removal of personnel involved from the AOA.

Project shutdown or personnel removal may be issued on a first offense.

C. Signs

All permanent signs affected by construction shall be replaced by temporary signs acceptable to the DAA. The Contractor shall submit a sign relocation plan to the DAA for approval prior to any relocation of any existing signs. When construction takes place near the AMA and at the discretion of DAA and Engineering personnel, signs stating "ACTIVE RUNWAY/TAXIWAY DO NOT ENTER" may be required.

D. Barricades and Channelizing Devices

Airside construction sites shall be barricaded and lighted to delineate the work area by using Railroad Tie Barricades with lights and flags placed at 10-foot intervals; taxiway areas shall be barricaded using low-profile lights with flags at 10-foot intervals.

Hazardous areas, those in which no part of an aircraft may enter, shall be defined by the placement of low-profile barricades with reflective markings, and flashing red beacons.

Construction areas on temporarily closed taxiways, runways, or ramp areas shall be defined by the placement of approved Type II Construction Barricades with flashing yellow beacons and shall be secured in place with sandbags as directed by the DAA. During daylight hours, rubber-based upright delineators may be used. All lights and batteries used to delineate construction and hazardous areas shall be constantly maintained by the Contractor during periods of nighttime use.

E. Lighting

Temporary light plants used in conjunction with nighttime work cannot be located in such a manner as to be an obstruction or hazard. In addition, these light plants cannot be located where the glare of the light will cause visual or physical interference to operating aircraft and the FAA Air Traffic Control tower.

When existing edge lighting are rendered inoperable on an active runway or taxiway, the Contractor must install temporary edge lights. The lights and wiring shall meet National Electrical Code (NEC) Article 300, and AC 150/5340-24 "Runway and Taxiway Edge Lighting System," latest edition, for permanent lighting. Any active runway or taxiway lights requiring temporary removal shall be replaced by a temporary installation.

A temporary connection shall be made to connect all remaining active runway or taxiway lights in a construction area where several lights may have been decommissioned. Contractor shall have prior approval by the DAA before temporarily connecting lights.

"Temporary edge lights shall be securely fastened down and the electrical power cable shall not be driven across. Airfield lighting cables operate at high voltage. They have the potential of 5000 volts and should have only qualified personnel working with them".

The Contractor **shall provide** red obstruction lights for all stationary cranes erected on the construction site. All moveable cranes shall be provided with red obstruction lights if the boom cannot be lowered during hours of darkness. The DAA will issue NOTAMs on obstruction lighting; the Contractor shall notify the Engineer if any relocation takes place.

All construction personnel that are working on the AOA during hours of darkness will wear clothing with reflective markings.

F. Pavement Markings

All existing pavement markings requiring removal shall be obliterated by means approved by the DAA.

Temporary markings consist of paint or temporary preformed marking tape (removable).

All permanent pavement markings shall be restored at project completion.

G. Haul Routes

Where haul routes cross active taxiways, traffic control with a flagger or Engineer escort approved by the DAA shall be implemented.

Traffic control is defined as a flagger or DAA approved escort by the DAA.

Haul routes crossing active taxiways will not be permitted unless authorized by the DAA.

If the Contractor's haul road crosses any area used by aircraft for taxiing, takeoff, or parking, a power broom and/or hand sweeping shall be used to keep this area clean of debris, which could damage aircraft engines or propellers. The Contractor shall be liable for any damages that occur.

Contractor's haul routes must be restored to their original condition at the completion of the project.

H. Transition Ramps

Construction projects on airside may involve overlays and/or milling operations on runway or taxiway surfaces. This operation will require the construction of temporary ramps to allow runway or taxiway use between actual work shifts during the airside non-peak hours.

I. Grade and Vegetation

Unless specified, all construction grades and vegetation must be restored to their original condition and be free of ruts and depressions. Appropriate seed shall be planted.

J. Closures/Interruptions

If any roadway or taxiway is interrupted because of the means and/or methods used by the Contractor, an alternate detour roadway or taxiway must be provided. The Contractor shall submit a plan to the Engineer for approval prior to use. All alternate routes must be properly delineated for AOA/AMA use.

K. Staging Areas and Environmental Compliance

The staging area cannot be located in high traffic areas within the AOA.

Any staging areas used must be left environmentally clean during and at completion of the construction project. This includes keeping the area clean of debris, oil spills, and other undesirable elements. Any hazardous or regulated waste material produced by the Contractor must be properly disposed of at the Contractor's expense according to all local, state, and federal regulations.

The Contractor may be required to provide test results to confirm an area has been left environmentally clean with any contamination removed.

L. Debris Hazards

Each construction project will have a procedure for regular cleanup and containment of construction material and debris. Special attention will be given to the cleaning of cracks and pavement joints. All taxiways, aprons, and runways must remain clean.

Secured waste containers with attached lids shall be required on construction sites.

Special attention should be given to securing lightweight construction material (concrete insulating blankets, tarps, insulation, etc.). Specific securing procedures and/or chain-link enclosures may be required.

Vehicle and equipment washing and clean up will not be allowed on the Airport unless approved by the DAA.

When working in an airport environment, immediate access to a power sweeper is required when construction occurs on any aircraft pavement area unless an appropriate alternative has been approved by the DAA and Engineer.

M. Airport Assistance Form

DAA has a construction "Airport Assistance Form" that may be utilized if necessary. The DAA may determine that the Contractor involved in a construction project will hinder operations, and if the contractor is not equipped or unable to rectify the problem within the established timeframe, the Airport Assistance Form will be implemented (Exhibit #1). The process for this work is as follows:

1. DAA or Engineer will initiate work;
2. Airport Maintenance will note the details involved and distribute completed copies;
3. Airport Finance will be notified of the pending cost claim;
4. The Engineer will receive notification of the action taken; and
5. Contractor is given a copy.

If anything that may affect aircraft operations, violations, or noncompliance of FAA or any other requirements is observed, the DAA must be notified.

DAA Telephone Numbers:

Office: (218) 727-2968
Airport Security: (218) 391-5631

VIII. SECURITY REQUIREMENTS

A. Airport Access and Identification (ID) Badge Requirements

1. All contractor employees working at a construction site in restricted areas of the Duluth Airport must obtain an Airport ID Badge. The badge must always be displayed on the outermost garment while inside restricted areas. Failure to do

so may result in criminal and civil penalties, revocation of the badge and the individual being barred from the Airport.

2. Registration

- a) The Engineer or sponsoring tenant must complete a construction fact sheet outlining the duration of the contract, the specific door and/or gate numbers for which access is requested, and the name of the Contractor and all subcontractors associated with the project.

Construction personnel will only access the points as specified by Construction Fact Sheet. If additional access points are required, the Engineer must coordinate with the DAA Operations Director and/or the Airport Security Office. **No access changes will be negotiated with Contractors.**

- b) The Contractor must complete a Unescorted Access/ DAA ID Badge Request Letter and Signature Authentication Form as shown in Exhibits #2 or #3 and #4.

- c)
- (1) The Contractor will designate an Authorized Certifier/s on company letterhead, who is/are responsible for signing all identification badge applications, including those for sub-contractor employees. Authorized certifier must undergo the same background checks as those he/she is certifying. Sample signatures on the Signature Authentication Form must be included with the letter. This is to insure badge applications are signed only by the Authorized Certifier/s.
 - (2) If the name of the sub-contractor company does not appear on the letter issued by the Contractor, no ID badges will be issued until an amended list is received.

c) Application

- (1) An application must be completed for each individual requesting access and Airport ID badge.
- (2) Airport ID badge applications are available from the Airport Security Office located in the Main Terminal.

Telephone Number: (218) 727-2968

Fax Number: (218) 727-2960

- (3) All applications must be an original; no copies will be accepted.

d) Background checks

- (1) A favorable FBI Fingerprint Criminal History Records Check (CHRC) must be conducted on employees requesting access / Airport ID Badge for work conducted in the Security Identification Display Area (SIDA)/Secured Area. (The employment background section of the application is not applicable.) *See Exhibit #3 for costs associated with the CHRC.

A five (5) year employment background check must be conducted on employees requesting access / Airport ID Badge for all other airport restricted areas. The background verification section of the application must be completed by the applicant and verified by the Certifier or his/her representative prior to a badge being issued. The verification form must include employment history for the required number of years, and all time must be accounted for.

The Airport Security Office may audit the background check information to ensure it is complete and accurate. If any discrepancies are found, the badge will be revoked until the information has been corrected. *NOTE: Any Transportation Security Administration (TSA) fines levied against the Airport for falsification of background information will be passed on to the Contractor. Additionally, any individual who falsifies background information can be held personally responsible and is subject to civil penalties levied by the TSA.

- (2) Guidelines for submitting background information are included with this document as Exhibit #3. If the background information is not accurate or complete, the application will be returned, and an ID badge will not be issued until corrected.
- (3) To allow adequate time for processing and verifying the background information, Required CHRC / background information and application must be submitted to the Airport Security Office a minimum of two business days before the badge is to be issued.
- (4) Badge application instructions contain a list of disqualifying crimes. If an applicant has been convicted of any of these crimes within the last ten years, he/she is not eligible to obtain a badge for access to airport restricted areas. The applicant must indicate whether or not he/she has been convicted of any of the crimes listed.
- (5) A warrants check may be run on the applicant. Individuals with warrants are subject to arrest, and the badge will not be issued until the warrant(s) is/are resolved.

- (6) The application must be signed by an authorized company certifier.

e) Training

- (1) All employees requesting unescorted re required to undergo security training, pursuant to Federal Regulations. This training must be scheduled through the Airport Security Office. Training time is approximately one hour.
- (2) If project size dictates, a construction class specific to the project will be conducted. A time for this class must be coordinated with the Airport Security Coordinator at (218) 727-2968.

f) Issuance of badges

- (1) There is a \$50 fee for the initial issue of each airport ID badge.
- (2) The fee must be submitted by the Contractor only. **Fees shall** not be accepted from subcontractor companies. The DAA will periodically bill the contractor for the fees. Fees should not be paid in cash by the applicants to submit a copy of a drivers license or other picture ID.

g) ID badge renewal/replacement procedures

- (1) Replacement of Lost/Stolen badges
 - (a) If a badge is lost or stolen, it must be reported to the Airport Security Office immediately (218-391-5631), so the badge can be deactivated.
 - (b) A replacement application must be completed and signed by an authorized company certifier.
 - (c) \$50 replacement fee must be paid.
 - (d) If the badge is later found, the employee must bring in the found badge to the Airport Security Office.
- (2) Renewal of Expired Badge
 - (a) The Engineer must submit, in writing, a request to extend the expiration date of the badges and provide a new expiration date.

- (b) A replacement application signed by an authorized company certifier must be completed for each employee still required on the project (Exhibit #5).

(3) Replacement of Inoperable or Damaged Badge

If for any reason the ID badge becomes damaged, the badge holder shall return the badge to the Airport Security Office, and a replacement badge will be issued at no cost.

(4) Replacement of a Defaced Badge

No stickers, pins drawings, etc. may be placed on the front of the Airport ID badge. No fee will be charged to replace a badge which has been defaced or altered if the badge is returned to the Airport Security Office.

h) Termination of employee

- (1) Upon voluntary or involuntary termination of the unescorted access privileges of the Applicant, the Company is required to notify the Airport Security Office (218-391-5631) immediately and surrender the identification badge as soon as possible. If the Applicant is convicted of any of the crimes after unescorted access is granted, the conviction must be reported by the Company immediately to Airport Security and the identification badge returned within 24 hours.

The Contractor shall notify the Airport Security Office, in writing, when a subcontractor is no longer under contract. The Contractor shall collect all badges and return them to the Airport Security Office within 72 hours. Failure to return a badge will result in a \$50.00 fine per badge.

- i) Escort procedures: An employee possessing a valid Airport ID badge may escort other individuals into the secure area under the following conditions:

- Individuals **under escort** must have an operational need to access the secure area.
- The employee providing the escort must remain within line of sight, and close enough to monitor the actions of the escorted person.

(1) Haul Routes

Contractor may use designated haul routes for deliveries if approved by the DAA, if the following conditions are met:

- (a) Delivery drivers are allowed to go to and from the delivery point only. Any other work or activity requires driver to be properly escorted or badged.
- (b) Spotters may be required to position along the route at intervals (from starting to ending points) to maintain a line of sight and direct the vehicles.
- (c) All delivery vehicles are properly equipped with flags and/or beacons to operate on the Airport.

If the above stated conditions cannot be met, delivery vehicles must be escorted by a vehicle properly equipped to operate on the Airport.

B. Vehicle Requirements

1. Vehicle markings

All Contractor vehicles and equipment operating in the AOA must display checkered flags during daytime use and yellow flashing beacons during nighttime use. The flag should be on a staff attached to the vehicle and should be at least a 3 foot square having a checkered pattern of International Orange and White squares at least one (1) foot on each side.

2. Vehicle Escort

- a) Only approved Contractor vehicles may be used to escort other vehicles onto the AOA. The vehicle providing the escort must lead and is responsible for the trailing vehicle(s).

It is acceptable for a person displaying an Airport ID Badge to provide pedestrian escort for vehicles; however, this is only allowed within 100 feet of the gate.

- b) Equipment (backhoes, graders, etc.) that remain at the job site will be stored in the staging area. Staging areas located within the AOA are not for contractor employee parking unless approved by the DAA.

C. Access Points/Gates

- 1. When non-automated gates are unlocked, they must be staffed at all times by a badged employee to control access. This individual must have the ability to

contact Airport Security via phone in the event of a security breach. This individual is required to check each person entering Airport restricted areas through the gate for a valid ID badge. Anyone not in compliance will be denied access.

2. All employees performing gate guard duties are required to attend a briefing with Airport Security to obtain instruction on their responsibilities.
3. If a problem is encountered, the gate guard must notify Airport Security (218-391-5631) immediately. The guard will be asked to describe the problem and give a description of the vehicle or individual involved.
4. While not actively being used, the gate must be kept **closed and locked**.
5. Access to construction sites through manual gates must be coordinated with Airport staff. **Contractor locks will be placed on gates interlocked with DAA locks ensuring DAA access at all times.**

D. Fencing

If a temporary fence is erected, displacing a portion of the airport perimeter fence, it must meet permanent fence standards, which are 6 feet of chain link with 3 strands of barbed wire angled away from the secure area at 45 degrees, with poles cemented in place.

E. Security Violations

1. Any employee who commits a security violation shall be immediately escorted out of the restricted area and his/her ID badge will not be returned until remedial actions have been taken (retraining, etc.). Based on the nature of the violation, the DAA may permanently revoke an Airport ID badge and deny access to restricted areas. The individual may also be responsible for any TSA penalties or fees levied for the violation.
2. Construction project may be shut down and delayed at the expense of the contractor if security violations persist.
3. Security violations include the following:
 - a) Loaning an airport ID badge to another individual or using another individual's badge.
 - b) Failure to actively control a vehicle gate providing access to a secure area.
 - c) Leaving an escorted individual unattended in a secure area.

- d) Failure to possess and properly display a valid Airport ID badge while in the secure area.
- e) Propping open a door or gate that leads to a secure area and leaving it unattended.
- f) Leaving a door or gate unlocked that leads to a secure area.
- g) Allowing an unauthorized individual to follow you through a door leading to a restricted area, with the exception of individuals under approved escort.
- h) Using the Airport ID badge to enter secure areas of the airport that are not related to the construction job.
- i) Working with an expired badge.
- j) Failure to use the access card when entering a security controlled gate or door.
- k) Failure to challenge or report an un-badged individual or other security violations in Airport restricted areas.

IX. GLOSSARY

Advisory Circular (AC):

Documents produced by the FAA providing guidelines. The Advisory Circular is available at Internet address www.faa.gov/circdir.htm

Aircraft Movement Area (AMA):

The taxiways and runways controlled by the FAA ATCT.

Aircraft Operating Area (AOA):

The AMA expanded to include ramps/aprons and all areas inside the airport perimeter fence.

Air Traffic Control Tower (ATC, Control Tower, or Tower):

Controls all aircraft and vehicular movement on the aircraft movement area.

Apron:

The area near the buildings where aircraft load/unload and are serviced also referred to as the ramp.

Contractor:

The entity responsible for the completion of a contract or portion of a contract.

Duluth Airport Authority (DAA):

An Authority of the city of Duluth that is responsible for the Duluth International Airport as well as Sky Harbor Airport.

Duluth International Airport (Airport) (DLH):

Located approximately 5 miles west of the city of Duluth, consisting of approximately 3,000 acres, 2 runways.

Federal Aviation Administration (FAA):

Federal agency that governs aviation and activities at civilian airports.

Foreign Object Debris (FOD):

Unwanted, dangerous items on the ramps, taxiways, and runways that could damage an aircraft.

Object Free Area (OFA):

An area centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that

need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Obstacle Free Zone (OFZ):

The OFZ is (45m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches.

Primary Surface:

A surface longitudinally centered on a runway extending 200' beyond each end of the runway. The width varies from 250' for utility runways having only visual approaches to 1000' for precision instruments runways.

Restricted Area:

This area of the Airport refers to the acreage around the runways, protected by the secure exits from buildings, secure gates, and chain-link fences.

Safety Areas:

Runway: 9/27 and Runway 3/21 are 260 feet each side of the centerline, 1,000 feet off each end.

Taxiways: 80 feet each side of the centerline.

Security Identification Display Area (SIDA) / Secured Area:

SIDA / Secured Area means any area identified in the Airport Security Program as requiring each person to have completed a favorable FBI Fingerprint based CHRC and continuously display, on their outmost garment, an airport approved identification medium unless under an airport-approved escort.

The SIDA / Secured Area at the Duluth International Airport includes the entire area of the Main Terminal Ramp and its access points including the Airline's bag makeup areas.

Transportation Security Administration (TSA):

The Federal branch of Homeland Security responsible for oversight of airport security.

Transitional Surface:

A surface that extends outward and upward at right angles from the sides of the primary surface and the approach surface at a slope of 7 to 1.

Construction Gate Procedures

The gate that you are assigned is designed for your construction project only, it is not designated for the use of other employees. **Do not allow employees who are not working on your construction project to enter through your gate.** Law Enforcement, Fire and Ambulance Emergency vehicles are an exception; however they will usually be met and escorted by an Airport Authorized person, for direction and safety reasons.

Stop List: The Stop List provides you with the names of badge holders who lost, had revoked, or did not return their badge at the end of their employment. If you come in contact with someone who shows you a badge that is listed on the Stop List, **DO NOT** permit them to enter. Call Security or DAA Administration for clarification (218-391-5631 or 218-727-2968 extension 10). TSA Inspectors may check to see that you have a Stop List and ask you to explain your responsibilities. Become familiar with the Stop List and how to use it.

Entry Procedures:

- **Only valid SIDA / SECURE / AOA badge holders or workers can be allowed unescorted entry on to the Airport.** Insure each badge holder is displaying the badge on their outer most clothing, above the waist.
- **Each vehicle entering the Airport through your gate MUST be inspected each and every time they enter.** This inspection includes you visually inspecting the interior, exterior and cargo area to insure no prohibited items are being transported (Explosives, Improvised Explosive Devices or components, Firearms and ammunition, Incendiaries excluding matches and lighters, Hazardous materials not consistent with the individual's construction duties; or forged or altered, expired or false Airport media).
- **Contractors must provide the Duluth Airport Authority (DAA) a list of persons that will require escort.** If not on the Escort Access List, an individual must be verified through the contractor before escorted entry is allowed. The escort list is to be made available to TSA on request.
- **All persons requiring escort must be identified through a valid government issued photo ID** (driver's license, military ID, passport, etc). Entry Control Guards must physically handle the ID presented and compare it to the person presenting it.
- **The person under escort must be logged in and out daily** (see DAA Escorted Entry Control Form). These forms are to be turned into DAA Operations weekly.

- **Entry Control Guards must have a radio or cell phone** that allows them to contact Airport Security and/or 911 in an emergency exists or if an unauthorized entry is attempted.
- If at any time you have questions or concerns that are not an emergency, please contact the Director of Operations (218-590-8606) or Security Manager (218-391-7403) or Uniformed Security Officer (24/7 number is 391-5631).

X. APPENDIX

Exhibit #1

AIRPORT ASSISTANCE FORM

Date: _____ Project Number: _____

DAA Personnel Requesting Assistance _____
(Name)

(Signature)

Assistance For: _____
(Contractor/Company)

(Authorized Certifier)

Type Of Work Requested: _____

Area Where Assistance Is Needed: _____

Reason For Requesting Assistance: _____

Was This Activity Part of the Contract Work? () Yes () No

Equipment and Labor Used: _____
(Maintenance Department) _____

Start Time: _____ Completion Time: _____

Cost: _____

NOTES: _____

DISTRIBUTION: Airfield Operations, Maintenance, Finance, Engineering, and Contractor.

Exhibit #1 (Continued)

TYPE OF ASSISTANCE	COST/HOUR
EQUIPMENT	
Front End Loader	\$350
Oshkosh 18' Sweeper	\$450
Grader	\$500
Skidsteer	\$200
Labor (included in the above services)	\$125
PAVEMENT REPAIR	
Painting (pavement marking)	To be determined
Asphalting	" "
Concrete	" "
Shoulder Repair (class 5-gravel)	" "
Labor (included in the above services)	\$100
ELECTICAL ASSISTANCE	
Ditch Witch Trencher	\$250
Underground Locator	\$200
Install / Remove Temporary / Permanent Lights	\$250
Labor (included in the above services)	\$125
ESCORT	
Labor With Truck / Radio	\$100

*Billing in one-hour increments rounded to the next hour: one-hour minimum charge.

Exhibit #2

POLICY REGARDING REQUESTS FOR UNESCORTED ACCESS FOR AOA RESTRICTED AREAS

- A. Purpose: The purpose of this document is to set forth the rules and regulations at the Duluth International Airport, in compliance with FAA/TSA Security Requirements (FAR Part 1542), for tenants, contractors or other business entities seeking authorization for unescorted access privileges in the Air Operations Area (AOA) secure areas at Duluth International Airport for themselves or their employees. Such tenants, contractors and other entities shall be referred to hereafter as Company. The Duluth Airport Authority shall be referred to hereafter as DAA.
- B. Applicability: The provisions listed below are applicable to all Companies seeking unescorted access for themselves or their employee(s) inside secure areas at Duluth International Airport. No such request will be honored unless the Company has a lease, permit, service, construction or other such contract with DAA or is specifically authorized for entry by federal regulation.
- C. Designation of Certifier: For each project, contract, permit or lease, each company shall formally designate and authorize a person (known hereafter as the Certifier) to sign written requests and written certifications verifying background investigations for unescorted access privileges for themselves or their employees working inside the Airport's AOAs, as well as respond to the DAA's audits of such privileges. **The designation must be written on company letterhead, and include the name and title of the Certifier, as well as his/her business address, and shall contain a statement that a satisfactory five (5) year employment history background check has been accomplished for access to AOA secure areas.**
- D. Responsibilities: The Duluth Airport Authority (DAA) through its Executive Director and other airport staff is responsible for the overall security of the Airport. All Companies and their Certifiers are responsible for complying with the airport

security requirements contained in FAR Part 1542, this policy, and the Airport Security Program.

E. FAR Part 1540.103: "Fraud and Intentional Falsification of Records": Federal regulations specify that no person may make, or cause to be made, any of the following:

1. Any fraudulent or intentionally false statement in any application for any security program, access medium, or identification medium, or any amendment thereto, under this part.
2. Any fraudulent or intentionally false entry in any record or report that is kept, made, or used to show compliance with this part, or exercise any privileges under this part.
3. Any reproduction or alteration, for fraudulent purpose, of any report, record, security program, access medium, or identification medium issued under this part.

F. FAR Part 1542.207 "Access Investigation": Federal regulations require that the following minimum access investigation procedures be undertaken by a Company in order to request and obtain unescorted access privileges for itself and its employee(s) ("Applicants") working at Duluth International Airport and to designate a "Certifier":

1. The Company must require the Applicant/Certifier to complete a written application that includes:
 - a) The Applicant's full name, including any aliases or nicknames;
 - b) Dates, names, phone numbers and addresses of previous employers with explanations for any gaps in employment of more than 12 months, during the previous **5 year period**.
 - c) Any convictions during the above time period of crimes listed in Section IX; and
 - d) Notification that the Applicant/Certifier will be subject to employment history verification and possibly a criminal history records check.

2. The Company must confirm the identity of the Applicant/Certifier through the presentation of two forms of identification, one of which must bear the Applicant's/Certifier's photograph.
3. The company must verify the employment information of the Applicant/Certifier regarding the most recent 5 years of employment history by written documentation, by telephone interview, or in person with a representative of the prior employer(s). Written notes and/or documents concerning the name of the representative, date of verification, and the information verified must be created, maintained and presented to DAA upon request. In the event:
 - a) An Applicant/Certifier cannot satisfactorily account for and document a period of unemployment of 12 months or more; or
 - b) The Applicant/Certifier cannot support his/her statements made in the application or there are inconsistencies discovered; or
 - c) Information becomes available indicating a possible conviction for one of the disqualifying crimes listed in Section IX;

The Company will be required to request a FBI fingerprint based Criminal History Records Check (CHRC) on the individual. This request must be made through DAA for all Companies. The criminal check will be processed by the FBI through the use of fingerprint cards. There will be a \$75.00 processing fee (checks payable to the DAA) that must be submitted with the criminal history request. Cost of the fingerprinting is additional.

G. Termination: Upon voluntary or involuntary termination of the unescorted access privileges of the Applicant, the Company is required to notify Airport Security within

8 hours by written notification and surrender the identification badge as soon as possible. If the Applicant is convicted of any of the crimes listed in Section IX after unescorted access is granted, the conviction must be reported by the Company immediately to Airport Security and the ID badge returned within 24 hours.

- H. Records: Company must keep verification records for each Applicant for 180 days after termination of unescorted access privileges. Company, through the Certifier, shall respond promptly and completely to periodic audits of persons whose access authority is to be continued.
- I. Disqualifying Criminal Offenses: An individual has a disqualifying criminal offense if the individual has been convicted, or found not guilty of by reason of insanity, any of the disqualifying crimes listed below in any jurisdiction during the last 5 years before the date of the individual's application for unescorted access authority, or while the individual has unescorted access authority. The disqualifying criminal offenses are as follows:
1. Forgery of certificates, false making of aircraft, and other aircraft registration violations;
 2. Interference with air navigation;
 3. Improper transportation of a hazardous material;
 4. Aircraft piracy (hijacking);
 5. Interference with flight crew members or flight attendants;
 6. Commission of certain crimes aboard aircraft in flight;
 7. Carrying a weapon or explosive aboard an aircraft;
 8. Conveying false information and threats;
 9. Aircraft piracy outside the special aircraft jurisdiction of the United States;
 10. Lighting violations involving transporting controlled substances;

11. Unlawful entry into an aircraft or airport area that serves air carriers or foreign air carriers contrary to established security requirements.
12. Destruction of an aircraft or aircraft facility.
13. Murder.
14. Assault with intent to murder.
15. Espionage.
16. Sedition
17. Kidnapping or hostage taking.
18. Treason
19. Rape or aggravated sexual abuse.
20. Unlawful possession, use, sale, distribution, or manufacture of an explosive or weapon.
21. Extortion
22. Armed or felony armed robbery.
23. Distribution of, or intent to distribute, a controlled substance.
24. Felony arson.
25. Felony involving a threat.
26. Felony involving – Willful destruction of property;
27. Importation or manufacture of a controlled substance;
28. Burglary;
29. Theft; Dishonesty, fraud, or misrepresentation;
30. Possession or distribution of stolen property;
31. Aggravated assault;

32. Bribery;

33. Illegal possession of a controlled substance punishable by a maximum term of imprisonment of more than 1 year.

34. Violence at international airports.

35. Conspiracy or attempt to commit any of the aforementioned criminal acts.

- J. The Cost of ID Badges / Access Cards: The cost of Airport ID Badges and Access Cards issued to individuals or organizations on an initial or replacement basis is \$65.00 each. This price reflects the cost of materials (photo supplies/card stock) and labor to include training, data entry, and the making and issuing the cards. Airport ID Cards and Access Cards will be paid for at the time of issuance. Exception to this policy will be major tenants that have an established account with the Airport Authority Bookkeeping Office. ID Cards and Access Cards will be issued through the Airport Security Office. Checks can be made out to the Duluth Airport Authority (DAA) with the type of badge or card annotated in the memo section of the check. A receipt will be issued.

In the event an ID Badge or Access Card is lost, the individual will be assessed \$50.00 per item in addition to replacement cost of \$50.00 per item.

Authorized Company Clearances: _____

Authorized Badge Color: _____

I, _____, _____
(Print Name) (Print Title)

have been authorized by the above company to request employee I.D. cards for security identification and access purposes at Duluth International Airport. I have reviewed the DAA Policy regarding my responsibilities and agree that in making such request, I am certifying that my company and I understand and have fully complied with the Federal Aviation Administration, The Transportation Security Administration, DAA Airport Security Program requirements, and the rules and regulations regarding background checks and verification. I also understand that I may be criminally or civilly prosecuted for providing false or fraudulent information.

Signature

City / County of _____, State or Commonwealth of _____

The foregoing document was acknowledged before me this _____ day of _____ 201_

by _____
(Name of person seeking acknowledgement)

Notary Public

My commission expires: _____

CHECKLIST FOR AOA BADGE PAPERWORK.

- **PAGE 1. HAVE APPLICANT COMPLETE AND SIGN/DATE.**
- **PAGES 2 & 3. APPLICANT COMPLETES 5 YEAR WORK HISTORY. CERTIFIER AUTHENTICATES AND SIGNS OFF ON INFORMATION PROVIDED.**
- **PAGE 4. AUTHORIZED CERTIFIER ANNOTATES TIMES OF ACCESS, IF AIRFIELD DRIVING IS REQUIRED, AND SIGNS APPLICATION AUTHORIZING THE BADGE. IN ADDITION, APPLICATION MUST INDICATE SECURITY TRAINING IS CURRENT. APPLICANT MUST SIGN FOR BADGE WHEN IT IS RECEIVED.**
- **APPLICATION MUST ALSO CONTAIN:**
 - **COPY OF DRIVERS LICENSE & ONE OTHER FORM OF ID: SOCIAL SECURITY CARD, PERMIT TO CARRY A WEAPON, PILOTS LICENSE, COMPANY ID, ETC.**
 - **IF APPLICANT REQUIRES AN ACCESS CARD, THEY MUST HAVE COMPLETED AND SIGNED AN ACCESS CARD RECEIPT FORM.**

EXHIBIT #3

POLICY REGARDING REQUESTS FOR UNESCORTED ACCESS FOR THE SECURITY IDENTIFICATION DISPLAY AREA (SIDA)

- A. Purpose: The purpose of this document is to set forth the policies and procedures for the Duluth International Airport, in compliance with FAA/TSA Security Requirements (FAR Part 1542), for tenants, contractors or other business entities seeking authorization for unescorted access privileges in the Security Identification Display Area (SIDA) at Duluth International Airport for themselves and/or their employees. Such tenants, contractors and other entities shall be referred to hereafter as Company. The Duluth Airport Authority shall be referred to hereafter as DAA.
- B. Applicability: The provisions listed below are applicable to all Companies seeking unescorted access for themselves or their employee(s) in the SIDA at Duluth International Airport. No such request will be honored unless the Company has a lease, permit, service, construction or other such contract with DAA or is specifically authorized for entry by federal regulation.
- C. Designation of Certifier: For each project, contract, permit or lease, each company shall formally designate and authorize a person (known hereafter as the Certifier) to sign written requests and written certifications verifying background investigations for unescorted access privileges for themselves or their employees working inside the Airport's SIDA / Secured Area. As well as respond to the DAA's audits of such privileges. **The designation must be written on company letterhead, and include the name and title of the Certifier, as well as his/her business address, and shall contain a statement that a satisfactory FBI fingerprint based**

Criminal History Records Check (CHRC) has been accomplished and indicates no unfavorable information was disclosed so access may be granted to the SIDA/Secured Area.

- D. Responsibilities: The Duluth Airport Authority (DAA) through its Executive Director and other airport staff is responsible for the overall security of the Airport. All Companies and their Certifiers are responsible for complying with the airport security requirements contained in FAR Part 1542, this policy, and the Airport Security Program.
- E. FAR Part 1540.103: "Fraud and Intentional Falsification of Records": Federal regulations specify that no person may make, or cause to be made, any of the following:
1. Any fraudulent or intentionally false statement in any application for any security program, access medium, or identification medium, or any amendment thereto, under this part.
 2. Any fraudulent or intentionally false entry in any record or report that is kept, made, or used to show compliance with this part, or exercise any privileges under this part.
 3. Any reproduction or alteration, for fraudulent purpose, of any report, record, security program, access medium, or identification medium issued under this part.
- F. FAR Part 1542.207 "Access Investigation": Federal regulations require that the following minimum access investigation procedures be undertaken by a Company in order to request and obtain unescorted access privileges for itself and its employee(s) ("Applicants") working at Duluth International Airport and to designate a "Certifier":
1. The Company must require the Applicant/Certifier to complete a written application that includes:
 - a) The Applicant's full name, including any aliases or nicknames;

- b) Any convictions during the above time period of crimes listed in Section IX;
and
- c) Notification that the Applicant/Certifier will be subject to a FBI Criminal History Records Check (CHRC).

2. The Company must confirm the identity of the Applicant/Certifier through the presentation of two forms of identification, one of which must bear the Applicant's/Certifier's photograph.

The Company will be required to request an fingerprint based Criminal History Records Check (CHRC) on the individual. This request must be made through DAA for all companies except air carriers. The CHRC will be processed by the FBI through the use of fingerprint cards. There will be a \$75.00 processing fee (checks payable to the DAA) that must be submitted with the criminal history request. Cost of the fingerprinting is additional.

- G. Termination: Upon voluntary or involuntary termination of the unescorted access privileges of the Applicant, the Company is required to notify Airport Security within 8 hours by written notification and surrender the identification badge as soon as possible. If the Applicant is convicted of any of the crimes listed in Section IX after unescorted access is granted, the conviction must be reported by the Company immediately to Airport Security and the ID badge returned within 24 hours.
- H. Records: Company must keep verification records for each Applicant for 180 days after termination of unescorted access privileges. Company, through the Certifier, shall respond promptly and completely to periodic audits of persons whose access authority is to be continued.
- I. Disqualifying Criminal Offenses: An individual has a disqualifying criminal offense if the individual has been **convicted**, or **found not guilty of by reason of insanity**, any of the disqualifying crimes listed below in any jurisdiction during the last ten (10) years before the date of the individual's application for unescorted access authority,

or while the individual has unescorted access authority. The disqualifying criminal offenses are as follows:

1. Forgery of certificates, false making of aircraft, and other aircraft registration violations;
2. Interference with air navigation;
3. Improper transportation of a hazardous material;
4. Aircraft piracy (hijacking);
5. Interference with flight crew members or flight attendants;
6. Commission of certain crimes aboard aircraft in flight;
7. Carrying a weapon or explosive aboard an aircraft;
8. Conveying false information and threats;
9. Aircraft piracy outside the special aircraft jurisdiction of the United States;
10. Lighting violations involving transporting controlled substances;
11. Unlawful entry into an aircraft or airport area that serves air carriers or foreign air carriers contrary to established security requirements.
12. Destruction of an aircraft or aircraft facility.
13. Murder
14. Assault with intent to murder.
15. Espionage.
16. Sedition
17. Kidnapping or hostage taking.
18. Treason
19. Rape or aggravated sexual abuse.
20. Unlawful possession, use, sale, distribution, or manufacture of an explosive or weapon.
21. Extortion
22. Armed or felony armed robbery.
23. Distribution of, or intent to distribute, a controlled substance.
24. Felony arson.
25. Felony involving a threat.
26. Felony involving –
 - Willful destruction of property;
 - Importation or manufacture of a controlled substance;
 - Burglary;
 - Theft;
 - Dishonesty, fraud, or misrepresentation;
 - Possession or distribution of stolen property;
 - Aggravated assault;
 - Bribery;

Illegal possession of a controlled substance punishable by a maximum term of imprisonment of more than 1 year.

27. Violence at international airports.

28. Conspiracy or attempt to commit any of the aforementioned criminal acts.

J. The Cost of ID Badges / Access Cards: The cost of Airport ID Badges and Access Cards issued to individuals or organizations on an initial or replacement basis is \$50.00 each. This price reflects the cost of materials (photo supplies/card stock) and labor to include training, data entry, and the making and issuing of cards.

Airport ID Cards and Access Cards will be paid for at the time of issuance. Exception to this policy will be major airport tenants that have an established account with the Airport Authority bookkeeping office. ID Cards and Access Cards will be issued through the Airport Security Office. Checks can be made out to the Duluth Airport Authority (DAA) with the type of badge or card annotated in the memo section of the check. A receipt will be issued.

In the event an ID Badge or Access Card is lost, the individual will be assessed \$50.00 per item in addition to the replacement cost of \$50.00 per item.

Authorized Badge Color: _____

I, _____, _____
(Print Name) (Print Title)

have been authorized by the above company to request employee I.D. cards for security identification and access purposes at Duluth International Airport. I have reviewed the DAA Policy regarding my responsibilities and agree that in making such request, I am certifying that my company and I understand and have fully complied with the Federal Aviation Administration, Transportation Security Administration, the DAA Airport Security Program requirements, and the rules and regulations regarding background checks and verification. I also understand that I may be criminally or civilly prosecuted for providing false or fraudulent information.

Signature

City / County of _____, State or Commonwealth of

The foregoing document was acknowledged before me this _____ day of
_____ 201____

by _____
(Name of person seeking acknowledgement)

Notary Public

My commission expires: _____

EXHIBIT #4

(SAMPLE)

CONSTRUCTION BADGE REQUEST LETTER

(COMPANY LETTERHEAD)

(To include name, address, and telephone number)

(Date)

Brian Grefe
Director of Operations
Duluth Airport Authority
4701 Grinden Dr.
Duluth, MN 55811

RE: Project Name: _____
Project No: _____

Dear Mr. Grefe:

The purpose of this letter is to advise you of *(company's name)* activities at Duluth International Airport and request authorization to apply for security identification badges. The badges will be needed until *(date project expires)*.

(Company name) is engaged in... (a brief description of your activities at Duluth International Airport to include locations on the Airport where proposed activities will occur, a point of contact, and the reason why your employees will require access to the restricted area of the Airport).

Attached is a list of all subcontractors authorized to work on this project.

To fulfill the requirements of the Duluth International Airport Security Program policies and procedures, the following individual(s) is (are) designated as certification official(s) (must be a company officer or their local management representative with the authority to bind the company) and their sample signature(s) appear on the attached, notarized document:

The individual(s) are familiar with the Airport's attached "Rules and Regulations Regarding Requests For Unescorted Access at Duluth International Airport". They will sign all applications for ID cards, act as a liaison for verification of employment history and or Criminal History Records Checks (CHRCs) for anyone whom they request access to the restricted areas of the Airport and will ensure *(company name)* employees who are issued Duluth International Airport ID badges comply with the Program. *(Company name)* will ensure a strict accounting of all ID badges is maintained, to include prompt reporting of any lost badges and return of ID badges upon termination or transfer of any employee. I understand that all Airport ID badges are, and remain, the property of the DAA and that failure on the part of my company or employees to abide by Airport rules and regulations may result in revocation of access privileges and confiscation of all outstanding ID badges.

As a condition of any such grant of access, I agree that any Transportation Security Administration fine levied against **the Airport** as a result of the actions or omissions of anyone for whom one of the certification official(s) has requested access to the restricted area **of Duluth** International Airport will be paid by *(company name)*.

I certify that I have authority to bind *(company name)* to this agreement.

Sincerely,

(Signature)
(Company officer or local manager)

CC: Project Engineer
Project File

EXHIBIT #5

4701 Grinden Drive, Duluth International Airport
Duluth, Minnesota 55811

DULUTH AIRPORT AUTHORITY
REPLACEMENT ID BADGE APPLICATION

(Please type or print legibly in ink)

Employee Information

Last Name	First Name	Mid Initial	
Social Security Number	Home Phone Number		
Home Address	City	State	Zip
Company Name		Work Phone Number	

Reason For Replacement

<input type="checkbox"/> Expired Tenant Badge	<input type="checkbox"/> Normal Wear	<input type="checkbox"/> Defaced
<input type="checkbox"/> Lost	<input type="checkbox"/> Name Change Only (Proof Required)	<input type="checkbox"/> Other _____

Authorized Company Certifier

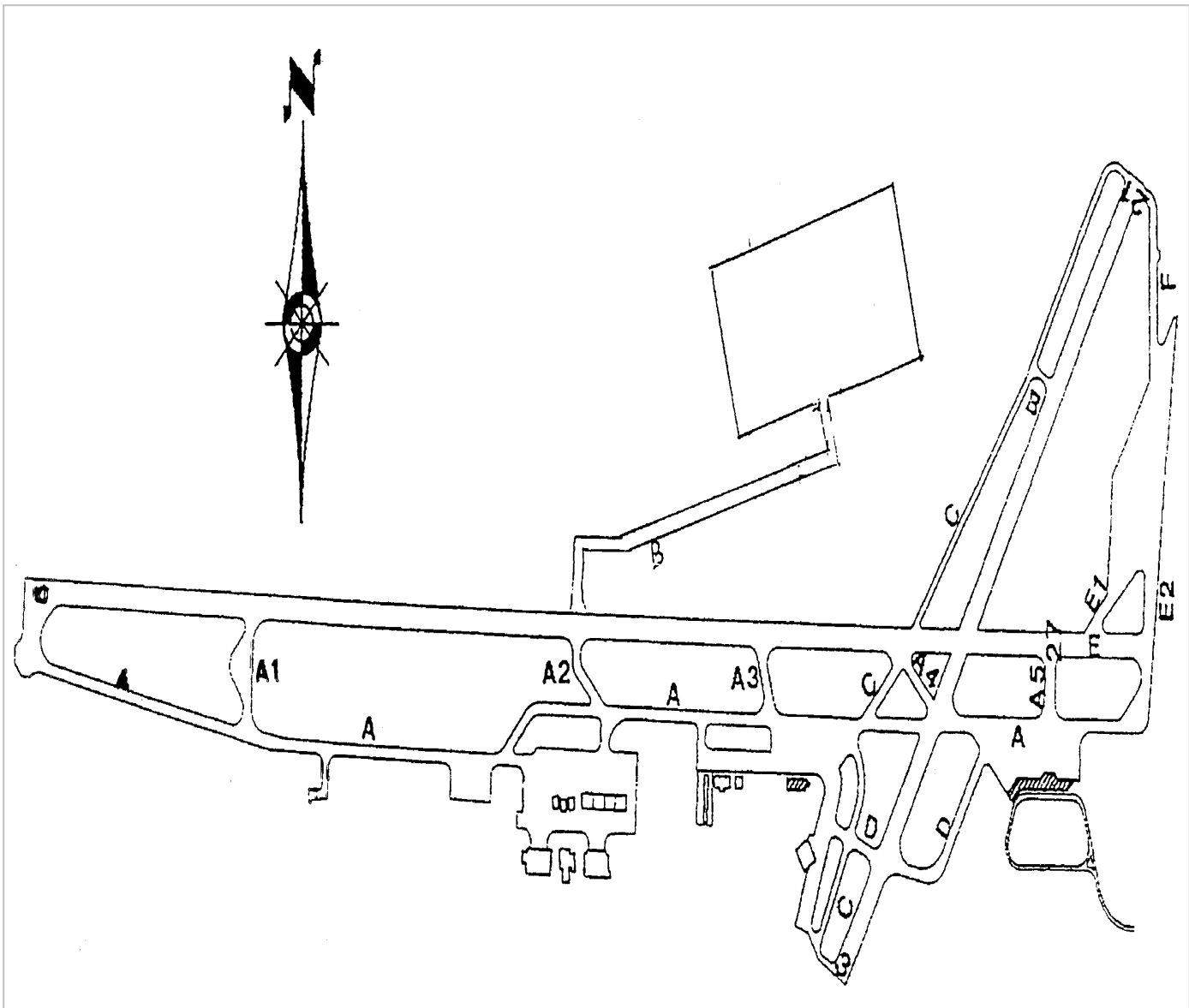
Last Name	First Name	Signature	Date
-----------	------------	-----------	------

Office Use Only

Badge Number	Lost Badge Number		
Comments			
Issued By	Date Issued	Entered By	Date Entered

Identification Badge Received By	Date
Signature	

EXHIBIT-6



AIRFIELD LIGHTING CIRCUIT ELECTRICAL SAFETY PROGRAM

Airfield lighting at the Duluth International Airport presents a unique electrical hazard that requires specialized knowledge of *series circuits*, as opposed to the more common parallel circuits on which most electricians are trained. Once trained on series circuits, qualified electricians are more capable of performing their tasks with tolerable levels of risk. To obtain and maintain this level of tolerability, however, a detailed airfield lighting electrical safety program (separate from any general electrical safety program) must be developed, implemented, and maintained so that new employees and contract electricians can work on or near the airfield lighting circuits with minimal risk of injury. The program should be updated when new hazards are introduced so that experienced electricians (in addition to new and contract electricians) will have a resource from which to gather information.

The existing electrical safety program has served the Duluth International Airport in numerous ways, but given the unique nature of airfield lighting circuits (ungrounded circuits; sophisticated, remotely-controlled constant current regulators with 3,000 volts on taxiways and 5,000 volts on runways), a specific program designed for airfield lighting is warranted. Along with such a program, a new role should be established, that of electrical safety manager (ESM). The ESM will be responsible for overseeing the development and maintenance of the airfield lighting electrical safety program.

This program is the first draft of such an airfield electrical safety program. The goals of this program are as follows:

Airport Electrical Safety Goals

- 1. Place all electrical circuits in an *electrically safe work condition* prior to any work on or near them.**
- 2. When it is not possible to place a circuit in an *electrically safe work condition* prior to working on or near the circuit, provide additional safeguards (such as voltage-rated gloves and blankets) so that an equivalent level of protection is provided.**
- 3. Provide meaningful electrical safety training for airfield maintenance employees, including contractors, newly-hired DAA maintenance employees, and experienced/qualified electricians (when new tasks/hazards are introduced).**
- 4. Provide guidance for airfield maintenance in the specific safe work practices associated with airfield lighting systems.**
- 5. Provide guidance regarding the proper personal protective equipment (PPE) to wear for various airfield lighting electrical tasks.**
- 6. To minimize airfield lighting down-time due to safety-related incidents**
- 7. To ensure that the best airfield lighting safety practices are incorporated into the Duluth Airport Authority's electrical safety program to keep pace with the ever-increasing aviation knowledge base, thus facilitating the airport's response to the rapid growth and change in the aviation industry.**

These are obtainable goals, but it is critical that airport upper management concur with them lest they not be embraced at all levels of the organization.

This electrical safety program has the following components:

Section I:	Scope & Philosophy
Section II:	Personal Responsibility
Section III:	Electrical hazards and other definitions
Section IV:	Creating an <i>Electrically Safe Work Condition</i> , including Lockout Program (Control of Hazardous Energy)
Section V:	Approaching Live Parts (Hazard Boundaries & Limits of Approach)
Section VI:	Energized Electrical Work Permit Program
Section VII:	Personal Protective Equipment
Section VIII:	Contractors and Vendors
Section IX:	Identification of Hazardous Tasks and Jobs
Section X:	Procedures
Section XI:	Program Administration
Section XII:	Training
Section XIII:	Budget
Section XIV:	Audit and Recordkeeping
Appendix A:	Annual Observation of LOTO
Appendix B:	Airfield Bulb Training

SECTION I: SCOPE and PHILOSOPHY

The basic philosophy on which this program is based is that all airfield electrical work must be performed with electrical circuits and systems in an **electrically safe work condition**. This means that the circuits are de-energized, locked out, tested dead, and in some cases, grounded. Although there will be some circumstances when this is not possible, those circumstances should be minimized, performed only when:

- A. De-energizing the circuit introduces additional hazards or,
- B. De-energizing is infeasible due to equipment design or operational limitations (such as the hazard that would be introduced to an aircraft on approach if the lighting system was inoperable).

In cases when a circuit or system will be worked on while energized, the airfield foreman must be aware of and approve the work (this is typically done via a work-permit system, although a permit is not required for tasks done routinely).

This airfield lighting electrical safety program must be read and understood by all maintenance employees at the Duluth Airport Authority who are or may be exposed to the airfield lighting circuits. Compliance with this program is a condition of employment. This includes electricians, contractors, vendors, servicing personnel, and employees other than electricians who may be exposed to the dangers of the airfield lighting circuits in the course of their normal work. Portions of the program will apply to airfield tower personnel, who must understand that their actions may endanger airfield electricians doing repairs on lighting circuits.

This program should also be read and understood by others who, although not directly exposed to the hazards of airfield lighting circuits, have a need to know about the associated hazards.

The Duluth Airport Authority's Safety Director is responsible for administering this program, although significant assistance will be provided by the SRE supervisory staff.

SECTION II: PERSONAL RESPONSIBILITY

- Each employee must take responsibility for working safely on or around electrical equipment. If you do not understand the job or task, ask your supervisor for a job briefing
- If you are designated as a *qualified electrician* (see definition below), you must know how to execute the emergency procedures to release someone from a live circuit and to perform first aid/CPR
- For all electrical work, particularly energized-electrical work, HAVE A PLAN to perform the work safely. Anticipate unexpected events.
- Use the following safety-related work practices at all times:
 - o Never break a live series circuit, as the voltage will rapidly increase, possibly up to 10,000V. Short circuits through YOU are the result. There is no overcurrent protection.
 - o Never handle cables or transformers in light base cans while there is current present. Cables or connectors can have cracked insulation that is not visible.
 - o Never enter a manhole containing exposed energized conductors without donning the proper protective equipment.
 - o Never handle cables or
- It should always be assumed that a circuit is energized until proven otherwise.
- Employees must be aware that de-energizing an electrical conductor or circuit part and making it safe to work on is, in itself, a potentially hazardous task.
- Do not work on electrical circuits or systems unless they are in an *electrically safe work condition* (de-energized, locked out, tested dead). Exceptions are permitted as allowed in this program.
- If an electrical circuit or system is not in an *electrically safe work condition*, additional precautions must be taken (e.g. voltage-rated gloves, blankets, mats).
- If a circuit is locked out, your lock should be on the lockout device.
- Only *qualified electricians* can perform high voltage work (>600V), and must always work with another *qualified electrician*.
- No bare-hand contact is to be made with exposed energized electrical conductors or circuit parts above 50 volts
- Know what constitutes a *confined space*. A confined space is defined as follows:
 - o Is large enough and so configured that an employee can bodily enter and perform assigned work; and
 - o Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits); and
 - o Is not designed for continuous employee occupancy. (from OSHA 1910.146)

SECTION III: ELECTRICAL HAZARDS and other DEFINITIONS

Electrically Safe Work Condition:

A state in which the conductor or circuit part to be worked on or near has been disconnected from energized part, locked/tagged in accordance with established standards, tested to ensure the absence of voltage, and grounded if determined necessary. Achieving an *electrically safe work condition* is the underlying principle of all electrical work. Performing work when a circuit is not rendered safe should be done only when necessary.

Hazards

The hazards associated with the airport lighting system, while unique, remain the same when discussing how they will injure and kill. Electrical hazards are:

- **Electric shock** – the primary hazard
- **Arc flash and arc blast** – typically hazardous only when working on the 480V side of the CCR or on any other non-series circuit, such as motor control centers, switchgear, and electrical distribution panels
- **Fire**

Electric Shock

To eliminate the hazards of electric shock, we need to know:

- The source of the hazard
- How the exposure could occur
- How severe the shock would be to the human body
- What action is necessary

Mitigating the Exposure to Electric Shock

- Can the circuit be de-energized?
- If not, what must be done to minimize the hazard?
- What personal protective equipment (PPE) will minimize the exposure?

Arc Flash

Arc flash is not as likely to occur on the low current series lighting circuits, but can occur on other non-lighting circuits on the airfield. This is because on non-lighting circuits, fault currents can increase significantly before over-current protective devices operate (in series lighting circuits, no such increase in current should occur, since the constant current regulator will maintain the current at its prescribed current).

Arc flash is defined as follows:

When an electric current passes through air between ungrounded conductors or between ungrounded conductors and grounded conductors, the temperatures can reach 35,000°F. Exposure to these extreme temperatures both burns the skin directly and causes ignition of clothing, which adds to the burn injury. The majority of hospital admissions due to electrical accidents are from arc-flash burns, not from shocks. Each year more than 2,000 people are admitted to burn centers with severe arc-flash burns. Arc-flashes can and do kill at distances of 10'. – Annex K, NFPA 70E

Arc Blast

Arc blast is not as likely to occur on the low current series lighting circuits, but can occur on other non-lighting circuits on the airfield. This is because on non-lighting circuits, fault currents can increase significantly before over-current protective devices operate (in series lighting circuits, no such increase in current should occur, since the constant current regulator will maintain the current at its prescribed current).

Arc blast is defined as follows:

An arc blast occurs when the tremendous temperatures of the arc cause the explosive expansion of both the surrounding air and the metal in the arc path. For example, copper expands by a factor of 67,000 times when it turns from a solid to a vapor. The danger associated with this expansion is one of high pressures, sound, and shrapnel. The high pressures can easily exceed hundreds or even thousands of pounds per square foot, knocking workers off ladders, rupturing eardrums, and collapsing lungs. The noise can exceed 160 dB. Finally, material and molten metal is expelled away from the arc at speeds exceeding 700 mph, fast enough for the shrapnel to penetrate the body. – Annex K, NFPA 70E

Fire

Electrical systems are a significant source of fire. This electrical safety program will not address this hazard directly, since fire hazards are broadly addressed in other sections of airport safety policies

Qualified Electrician

One who has the knowledge and skills related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved.

Limited Approach Boundary

An approach limit at a distance from an exposed live part within which a shock hazard exists

Restricted Approach Boundary

An approach limit at a distance from an exposed live part within which there is an increased risk of shock, due to electrical arc over combined with inadvertent movement, for personnel working in close proximity to the live part.

Prohibited Approach Boundary

An approach limit at a distance from an exposed live part within which work is considered the same as making contact with the live part.

Flash Protection Boundary

An approach limit at a distance from exposed live parts within which a person could receive a second degree burn if an electrical arc flash were to occur.

Confined Space

- i. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- ii. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- iii. Is not designed for continuous employee occupancy. (from OSHA 1910.146)

SECTION IV: ESTABLISHING AN ELECTRICALLY SAFE WORK CONDITION INCLUDING LOCKOUT PROGRAM (Control of Hazardous Energy)

The underlying principle in all airfield electrical work, whether on airfield lighting circuits or any other system greater than 50 volts, is to place the system in an *electrically safe work condition*. This means de-energizing the system through a physical disconnect switch (as opposed to an electronic switch, push button switches, selector switches, or other shutdown means that does not physically separate the electrical supply from the part or circuit you will be working on); locking the circuit out; testing the circuit dead (de-energized), and; grounding the circuit, where appropriate.

The steps in achieving an *electrically safe work condition* are as follows:

1. Determine all possible sources of electrical supply to the equipment or circuit on which you will be working. Check applicable up-to-date drawings, diagrams, and ID tags.
2. After properly interrupting the load current, open the disconnecting device(s) for each source identified in Step 1 above
3. Wherever possible, visually verify that all blades of the disconnecting devices are fully open or that drawout-type circuit breakers are withdrawn to the fully disconnected position.
4. Apply lockout devices in accordance with the lockout program below
5. Use voltage and current detection equipment to test each phase conductor or circuit to verify they are de-energized. Only a true RMS clamp-on ammeter should be used to test a series lighting circuit dead (voltage detection devices can read zero on such circuits). **Voltage testing (or current testing) is, in itself, a hazardous activity.** You should test the circuit dead after lunch, at the start of a new shift, or any time conditions change so that energy may be present on the circuit. Each and every time you test for the presence of hazardous energy:
 - a. Test the meter on a known energized source
 - b. Test the locked out circuit for zero energy
 - c. Verify the function of the meter again on the known energized source
6. Safeguard the circuit against induced voltages. Airfield lighting circuits are subject to such induced voltages. Use local procedures to protect yourself against such voltages. When grounding is appropriate, use grounding wires with ample capacity, such as in cases where the circuit on which you are working could contact other exposed energized conductors.

Lockout Program and Procedure

A system cannot be considered in an *electrically safe work condition* unless it is locked out. The steps below must be used to ensure that the circuit on which you are working is not only de-energized but will remain de-energized until you remove your lock or otherwise relinquish control of the circuit.

Circuit lockout implies that whoever is working on the circuit has his or own lock on the power supply disconnecting means. You should never work under the protection of someone else's lock. If numerous employees are working on a circuit, multi-lock hasps or group lock boxes are available so that each employee can put his own lock on the circuit.

Employees other than electricians, such as contractors and other trades, should be included in the lockout. Only qualified persons, however, trained in the lockout program as well as any specific lockout procedures may apply a lockout.

Locks used in the lockout program must be uniquely identified and must be used for system lockout only. The lock must be linked to a particular employee or group lockbox. Keyed or combination locks are allowable, provided the key or combination is in the control of the person whom the lock is protecting.

Machine- or System-Specific Lockout Procedures

Each task, circuit, or system having one of the following characteristics requires its own, unique lockout procedure:

- a. Multiple energy sources
- b. Multiple disconnecting means
- c. Multiple crews or crafts working on the equipment
- d. Multiple locations
- e. Unique or unusual shutdown or re-start sequences
- f. A job or task that continues for more than one week

The procedures must inform the qualified person how and through what disconnecting means the energy sources can be identified, including drawings; how energy sources can be isolated; sources of stored/residual energy; must identify who might be exposed; who is in charge;

Steps to Perform in a Lockout

1. Determine if this will be an *individual employee control lockout*, a *simple lockout*, or a *complex lockout*.
 - a. **Individual Employee Control Lockout Procedure** – Permitted for a single employee when equipment with exposed conductors and circuit parts is de-energized for minor maintenance, servicing, adjusting, cleaning, inspection, and similar low-hazard activities. A lock need not be placed on the disconnecting means, provided the disconnecting means is adjacent to the conductor or equipment being worked on and is clearly visible to the employee working on it. The work cannot extend beyond one shift. Machine or equipment specific lockout procedures are not required for this type of lockout.
 - b. **Simple Lockout Procedure** – All lockouts not considered an *individual employee control lockout* or a *complex lockout* are *simple lockouts*. A simple lockout involves one or more qualified employees (trained in the lockout program) locking out one set of conductors. Machine or equipment specific lockout procedures are not required for this type of lockout.
 - c. **Complex Lockout Procedure**
 - i. Requires that a single qualified person be in charge of all energy sources and their lockout status as well as all personnel working under the protection of the lockout. The means of accounting for all personnel must be identified.
 - ii. Requires a written procedure which identifies the person in charge. The written procedure must identify how the circuit is verified dead (de-energized).
 - iii. A complex lockout procedure is required when:
 - g. There are multiple energy sources
 - h. Multiple disconnecting means
 - i. Multiple crews or crafts
 - j. Multiple locations
 - k. Particular shutdown or re-start sequences
 - l. A job or task that continues for more than one week
2. Record the Circuit or items to be locked out on the dry erase board in the vault office including all info asked for on the board. Fill out a LOTO log sheet and post on the CCR for the duration of the work and then file on the LOTO binder.
3. Determine how each source of energy is to be physically controlled. A specific lockout procedure is required for any gear that has more than one energy source, can regain energy after lockout, or cannot be locked out with one device. Refer to the specific lockout procedure. If the procedure has not been audited in the last year, review it with a knowledgeable person.
4. Open the disconnect switches or other disengaging means. Place the lockout device on the disconnecting means (e.g. circuit breaker/disconnect switch covers; rackout circuit breakers and bag them in lockable bags).
5. Place your lock and identifying tag on the locking device

6. Remove any stored voltage or other energy (e.g. capacitors, steam pressure, residual heat, springs, gravity, chemical energy)
7. Verify that all energy has been removed with the appropriate test equipment. For airport series lighting circuits, only a true RMS ammeter should be used to test for the absence of current.
8. Using the normal starting means, attempt to start the equipment to verify that no energy is available on the circuit.
9. Work on the circuit as necessary. Check for the presence of hazardous voltages at frequent intervals, particularly after lunch, at the start of a new shift, or whenever you suspect energy on the circuit.
10. Shift Changes: At no time should a locked out circuit have its protective locks removed. Shift changes should be planned so that before one or more of the off-going shift's locks are removed, someone (the supervisor is best) from the oncoming shift should place his lock on the disconnecting means.
11. Never remove someone's lock until it can be confirmed that they are not somewhere on the airfield subject to injury. If another's lock is removed, ensure they are notified before they return to work.

SECTION V: APPROACHING LIVE PARTS (HAZARD BOUNDARIES & LIMITS OF APPROACH)

All live parts greater than 50 volts must be placed in an *electrically safe work condition* before work on or around them can be done. There are exceptions, however, if it can be demonstrated by electrical supervision or airport management that de-energizing the circuit:

1. Introduces additional or increased hazards, or;
2. Is infeasible due to equipment design or operational limitations.

For example, if de-energizing a circuit places aircraft on approach or on the ground in danger, airport management or electrical supervision may decide that the risks of working on a circuit energized are worthwhile. Another example demonstrating when it may be acceptable to allow energized work is when a circuit must be tested when it is running, including voltage testing on live circuits. **Note that it should be airport management or electrical supervision that makes such a determination, and an energized electrical work permit should be obtained!**

Boundaries around energized electrical parts and circuits should be established:

- 1) When working near exposed energized electrical parts. This includes work that is done close enough to energized electrical circuits or conductors such that a person who is not knowledgeable about such circuits could be injured if he or she inadvertently touched or came near the circuit. This could include the general public, other employees on the airfield, other electricians, or contractors. Such work will not require an *energized electrical work permit* if the employees involved will not be crossing the *limited approach boundary*, which is, at a minimum, 3'6" from the energized part. If at any time employees who are not classified as *qualified electricians* will be crossing the *limited approach boundary*, an *energized electrical work permit* (see next section) must be pulled from electrical supervision, and the job must be overseen by a qualified electrician, even if no electrical work is to be done. A better alternative to this is to de-energize the circuit, but if this is not possible, boundaries must be established, a permit pulled, and a qualified electrician enlisted to oversee the job. **At no time is an unqualified person permitted beyond the limited approach boundary without a qualified electrician escorting him! Unqualified persons are never permitted beyond the *restricted approach boundary*!**
- 2) Boundaries must also be established when purposely working on or near exposed energized electrical parts. This includes all work, whether by a qualified electrician or not, done inside the *restricted approach boundary* (see definitions below). All work of this type also requires an *energized electrical work permit* (with some exceptions as noted in the next section). **Unqualified persons are never permitted beyond the *restricted approach boundary*!**

The boundaries established in the table below should be adhered to when working on or near exposed energized electrical conductors. The table is taken from NFPA 70E, Standard for Electrical Safety in the Workplace (2004) (the NFPA table goes up to values of 800 kV and should be consulted if needed for higher voltages).

<u>Voltage</u>	<i>Limited Approach Boundary¹</i>	<i>Restricted Approach Boundary</i>	<i>Prohibited Approach Boundary</i>	<i>Arc Flash Protection Boundary</i>
Less than 50	Not specified	Not specified	Not specified	See <i>Flash Protection Boundary</i> definition below
50 to 300	3'6"	Avoid contact	Avoid contact	
301 to 750	3'6"	1'0"	0'1"	
751 to 15 kV	5'0"	2'2"	0'7"	
15.1 kV to 36 kV	6'0"	2'7"	0'10"	

Table Notes

- 1) The *limited approach boundary* increases to 10' if the part being worked on can move (for example, energized rotors, wires, and other conductors that can be blown or pushed into an employee)

Limited Approach Boundary

An approach limit at a distance from an exposed live part within which a shock hazard exists. Persons who are not classified as *qualified electricians* may not breach this boundary without:

- 1) being briefed by a *qualified electrician* about the hazards of the space;
- 2) an escort by a *qualified electrician*, and;
- 3) wearing the appropriate flash protection equipment if an arc flash hazard exists.

Restricted Approach Boundary

Only *qualified electricians* may breach this boundary, and only when insulated or guarded from the energized part. The electrician must not only be qualified generally, but specifically qualified to do the task at hand. No conductive tools or parts may be brought closer than this boundary unless the electrician is insulated or guarded from shock. This boundary is an approach limit at a distance from an exposed live part within which there is an increased risk of shock, due to electrical arc over combined with inadvertent movement, for personnel working in close proximity to the live part.

Prohibited Approach Boundary

Crossing this boundary is considered the same as making contact with the live part. An electrical shock is probable simply by crossing this boundary without insulation or other protective measures.

Flash Protection Boundary

An approach limit at a distance from exposed live parts within which a person could receive a second degree burn if an electrical arc flash were to occur. The arc flash hazard while working on series airfield lighting circuits powered by a constant current regulator is minimal, since there is little bolted fault current available. For other airfield work, such as work done on the 480V supply to the constant current regulators and other non-lighting circuits, there is a significant arc flash/arc blast hazard. For voltages < 600 volts, the arc flash boundary will be at least four (4') feet (this is based on circuit interruption clearing time of 6 cycles (0.1 second) and

the available bolted fault current of 50,000 A – other clearing times will require a flash hazard analysis in accordance with NFPA 70E, section 130.3).

Observing a safe approach distance from exposed energized electrical conductors or circuit parts is an effective means of maintaining electrical safety. As the distance between a person and the exposed energized conductors or circuit parts decreases, the potential for electrical accident increases.

Unqualified persons can ensure their safety when they maintain the distances specified in the *Limited Approach Boundary* of table above. They must increase the distance if they are carrying long parts or tools (for example, if carrying a 1' pipe wrench, a plumber who happens to be working near a 120V exposed circuit should maintain a *Limited Approach Boundary* of 4'6" (3'6" + 1' (wrench) = 4'6").

Note that if this is a lighting circuit, there is no significant arc flash hazard. If this is any other type of non-lighting circuit, however, there is a possibility of arc flash, so that the arc flash boundary of 4' should be observed. Within 4' of such a circuit, all employees should be wearing flash protection gear.

SECTION VI: ENERGIZED ELECTRICAL WORK PERMIT PROGRAM

When Must an Energized Electrical Work Permit be Pulled?

All live parts greater than 50 volts must be placed in an *electrically safe work condition* before work on or around them can be done. There are exceptions, however, if it can be demonstrated by electrical supervision or airport management that de-energizing the circuit:

1. Introduces additional or increased hazards, or;
2. Is infeasible due to equipment design or operational limitations.

For example, if de-energizing a circuit places aircraft on approach or on the ground in danger, airport management or electrician supervision may decide that the risks of working on a circuit energized are worthwhile. **Note that it should be management or supervision that makes such a determination, and an energized electrical work permit should be obtained!**

Exceptions to Work Permit

Work performed on or near live parts by *qualified electricians* for testing, troubleshooting, voltage measuring, and similar tasks may be permitted without a permit, provided appropriate safe work practices and personal protective equipment is used. **Note that it should be management or supervision that allows such exceptions. These exceptions should never be allowed unless additional precautions are taken, such as using insulated gloves and other protective gear.**

Initiating an Energized Electrical Work Permit

1. Unless a task has been pre-approved as one that is allowed to be done energized without a permit, complete an *Energized Electrical Work Permit* form, items 1-11. Use the *Job Briefing and Planning Checklist* below to assist you. On some occasions, you may need input from someone outside the electrical maintenance group to complete items 1-3, since it is they who are telling you that the equipment or circuit cannot be de-energized.
2. Once complete, have the form approved by the Airside Manager.
3. If approved, establish the shock and flash protection boundaries, keeping in mind that they must be sturdy enough to keep unqualified people away. Unqualified people usually do not know what live bussing, cable, and circuits look like.
4. In addition to the shock hazards, remember the arc flash/arc blast hazards! This usually calls for arc flash clothing and protective gear whenever you are within 4' of an energized circuit < 600V. See the Personal Protective Equipment chapter of the electrical safety program for the right protective gear to wear.
5. Perform the work as outlined on the form, but plan for the unexpected.
6. After the work is complete, notify the supervisor who authorized the work

ENERGIZED ELECTRICAL WORK PERMIT

PART I: To be completed by the requestor (may or may not be an electrician)

Job/Work Order Number: _____

1. Description of circuit/equipment/job location:

2. Description of work to be done:

3. Justification of why the circuit/equipment cannot be de-energized or the work deferred until the next scheduled outage: _____

Requestor – Print

Requestor - Sign

Date

PART II: TO BE COMPLETED BY THE QUALIFIED ELECTRICIAN DOING THE WORK

4. Detailed procedure to be used in performing the above detailed work:

5. Description of the safe work practices to be employed:

6. Determine boundary distances: *limited approach; restricted approach; prohibited approach; flash:*

7. Is there an arc flash/arc blast hazard (there is no arc flash/blast hazard if the work will be done on constant current circuits; if work is done on any other circuit, including the 480V side of the CCR, there is dangerous arc flash/arc blast current available)

8. Personal protective equipment to be used:

9. Means employed to restrict the access of unqualified persons from the work area:

10. Did you complete a job briefing (when and with whom)? _____
11. Do you agree that this work can be performed safely (if not, return to requester)? _____

Electrically Qualified Person – Print

Sign

Date

PART III: APPROVALS TO PERFORM THE WORK WHILE HOT (ENERGIZED)

Airside Manager – Print

Sign

Date

Job Briefing and Planning Checklist

Identify

- ☐ Hazards
- ☐ Voltage levels
- ☐ Skills required
- ☐ Any secondary voltage sources?
- ☐ Any unusual work conditions
- ☐ Number of people needed to do the job

- ☐ Shock protection boundaries
- Is this series lighting, powered by a CCR? If so, no significant arc flash hazard
- ☐ If this is not an airfield lighting circuit, an arc flash/arc blast hazard is available

Ask

- ☐ Can the equipment be de-energized?

- ☐ Are backfeeds to the circuit possible?

Check

- ☐ Job Plans
- ☐ Single-line diagrams, as-builts, vendor diagrams

- ☐ Status board
- ☐ Safety procedures
- ☐ Vendor information/tech manual

Know

- ☐ What the job is
- ☐ Who else needs to know

- ☐ Who is in charge

Think

- ☐ About the unexpected...what if...?
- ☐ Lock-tag-test-try
- ☐ Test for voltage or current first
- ☐ Use the right tools and equipment, including protective gear

- ☐ Install and remove grounds, when required
- ☐ Install barriers and boundaries

Prepare for an emergency

- ☐ Is the standby person CPR trained?
- ☐ Is the required emergency equipment available?
- ☐ Where is the nearest telephone or communication equipment?

- ☐ Where is the fire alarm and fire extinguisher?
- ☐ Is confined space rescue available?
- ☐ What is the exact work location?
- ☐ How is the equipment shut off in an emergency?

SECTION VII: PERSONAL PROTECTIVE EQUIPMENT

General Principles

- Fire-resistant (FR) safety eyewear is required at all times
- Protective equipment is worn to protect against two major categories of electrical injury:
 - o Electrical shock – insulating gloves, mats, blankets. The primary feature of this protective equipment is that it insulates the wearer from electric shock
 - o Arc flash and arc blast – usually clothing, coveralls, hoods, etc., designed to withstand the arc flash and blast. The primary feature of this protective equipment is that it insulates the wearer from the high-energy electrical plasma, the heat, and to a lesser extent, the blast of a high-energy bolted fault. **It is critically important to protect the head, neck, and chest.**
- You must wear rubber insulating gloves where there is danger of hand and arm injury from electric shock due to contact with live parts. Gloves are categorized as follows:
 - o Class 00 up to 500V
 - o Class 0 up to 1,000V
 - o Class 1 up to 7,500V
 - o Class 2 up to 17,000V
 - o Class 3 up to 26,500V
 - o Class 4 up to 36,000V
- Insulated tools
 - o Insulated tools rated for the task being done must be used whenever working within the *restricted approach boundary*.
 - o Note that the *restricted approach boundary* must be increased by the length of tools, parts, and materials used. For example, if a two foot long pipe wrench is needed in the work zone, the restricted approach boundary must be increased by two feet.
 - o Fuse or fuse holding equipment must be insulated for the circuit voltages being worked on.
 - o Ropes and cables must be non-conductive
 - o Ladders must be non-conductive
- All protective equipment should be inspected before use. Do not use damaged gear or gear contaminated with oil or grease.
- Flame resistant clothing must be worn whenever there is a chance for arc flash or arc blast. Arc flash and arc blast, although unlikely to occur when working on lighting circuits, are frequent occurrences on other circuits, including simple 120V, 480V, and 277V circuits. Do not wear clothing that does not meet the FR requirements in the Table 2 below.
- Fibers that can melt, such as acetate, nylon, polyester, polypropylene, and spandex, shall never be worn against the skin (exception: small amounts of elastic used on underwear or socks is permitted). Fibers that can melt will greatly increase any burn injury incurred in an arc flash incident.

- When head, neck, face, and chin protection are required, ensure that the equipment is worn correctly. It is very common for electricians to leave their hoods up and their neck protection undone.
- When flame resistant (FR) clothing is worn to protect an employee, it shall cover all ignitable clothing and shall allow for movement and visibility.
- Tight-fitting clothing should be avoided. Loose-fitting clothing provides additional insulation because of air spaces.
- Flash Suits – required for some high hazard tasks (see Hazard/Risk Categories 3 and 4 in Table 1 below)
 - o Must be easy to put on and remove
 - o The entire flash suit, including the hood's face shield, must have an arc rating that is suitable for potential arc flash exposure of the task (see arc rating data in Table 3 below)
- Face shields must have an arc rating exposure suitable for the potential arc flash exposure of the task (see arc rating data in Table 3 below)
- Any outer garments such as rainwear or jackets must also be made of FR material
- Insulated soles on shoes should never be used as the sole protection against electrical shock.

Personal Protective Equipment When Working Within the Flash Protection Boundary

When inside the flash protection boundary, only fire resistant clothing and equipment can protect employees from arc flash and arc blast. Arc flash and arc blast hazards are a significant hazard for electrical work done on the airfield, including on the 480V supply side of constant current regulators, in circuit breaker panels, in switchgear, in motor control centers, and in numerous other places on the airfield. Arc flash and arc blast cause severe injuries to the head, neck, and chest area. Arc flash and arc blast occur when bolted faults generate thousands of amps, vaporizing the conductors making contact. These short-term, high current events happen very quickly, before the overcurrent protective devices operate.

For equipment and circuits less than 600V, the *flash protection boundary* should be established no closer than four (4') feet from the exposed energized part (this is based on circuit interruption clearing time of 6 cycles (0.1 second) and the available bolted fault current of 50,000 A – other clearing times will require a flash hazard analysis in accordance with NFPA 70E, section 130.3). Arc flash/arc blast boundaries do not need to be established on or around constant current airfield lighting tasks, since there is no significant bolted fault current to cause such an increase in energy.

Section X below contains common procedures done on the airfield in which arc flash and arc blast are a hazard. In each of those procedures, the protective equipment required to assist in surviving arc blast and arc flash are provided. Some other common tasks, their *Hazard/Risk Categories*, and their associated protective systems are listed below. First find the task you wish to do and the *Hazard/Risk Category* associated with it. Then determine what protective system matches the *Hazard/Risk Category*. Note that this is to protect you only against arc flash and arc blast. Insulated gloves and tools should be used to prevent against shock whenever working on or near the equipment. You will note that constant current airfield lighting work is not included because during normal constant current regulator (CCR) operation, dangerous bolted fault currents will not develop. By definition, arc flash and arc blast occur when bolted fault currents in the kA range develop. Since CCR's maintain constant current, even in ground fault conditions, arc flash and arc blast are not expected to occur in most situations.

TABLE 1

<u>Task</u> (assumes equipment is energized and work is done within the <i>flash protection boundary</i>)	Hazard/ Risk Category
Panelboards rated 240V and below	
Circuit breaker (CB) or fused switch	0
Opening hinged covers (to expose bare, energized parts)	0
Work on energized parts, including voltage testing	1
Remove/install circuit breakers or fused switches	1
Removal of bolted covers (to expose bare, energized parts)	1
Panelboards or Switchboards Rated > 240V and up to 600V	
CB or fused switch operation with covers on	0
CB or fused switch operation with covers off	1
Work on energized parts, including voltage testing	2*
600V Class Motor Control Centers (MCC)	
CB or fused switch or starter operation with enclosure doors closed	0
Reading a panel meter while operating a meter switch	0
CB or fused switch or starter operation with enclosure doors open	1

Task (assumes equipment is energized and work is done within the <i>flash protection boundary</i>)	Hazard/ Risk Category
Work on energized parts, including voltage testing	2*
Work on control circuits with energized parts 120V or below, exposed	0
Work on control circuits with energized parts > 120V, exposed	2*
Insertion or removal of individual starter “buckets” from MCC	3
Application of safety grounds, after voltage test	2*
Removal of bolted covers (to expose bare, energized parts)	2*
Opening hinged covers (to expose bare, energized parts)	1
600V Class Switchgear (with power circuit breakers or fused switches)	
CB or fused switch operation with enclosure doors closed	0
Reading a panel meter while operating a meter switch	0
CB or fused switch or starter operation with enclosure doors open	1
Work on energized parts, including voltage testing	2*
Work on control circuits with energized parts 120V or below, exposed	0
Work on control circuits with energized parts > 120V, exposed	2*
Insertion or removal (racking) of CBs from cubicles, doors open	3
Insertion or removal (racking) of CBs from cubicles, doors closed	2
Application of safety grounds, after voltage test	2*
Removal of bolted covers (to expose bare, energized parts)	3
Opening hinged covers (to expose bare, energized parts)	2
Other 600V Class Equipment (277V through 600V)	
Removal of bolted covers (to expose bare, energized parts)	2*
Opening hinged covers (to expose bare, energized parts)	1
Work on energized parts, including voltage testing	2*
Application of safety grounds, after voltage test	2*
Cable trough or tray cover removal or installation	1
Miscellaneous equipment cover removal or installation	1
Insertion or removal	2*
Motor Starters - NEMA E2 (fused contactor): 2.3 kV through 7.2 kV	
Contactors operation with enclosure doors closed	0
Reading a panel meter while operating a meter switch	0
Contactors operation with enclosure doors open	2*
Work on energized parts, including voltage testing	3
Work on control circuits with energized parts 120V or below, exposed	0
Work on control circuits with energized parts > 120V, exposed	3
Insertion or removal (racking) of starters from cubicles, doors open	3
Insertion or removal (racking) of starters from cubicles, doors closed	2
Application of safety grounds, after voltage test	3
Removal of bolted covers (to expose bare, energized parts)	4
Opening hinged covers (to expose bare, energized parts)	3
Metal Clad Switchgear, 1 kV and above	
CB or fused switch or starter operation with enclosure doors closed	2
Reading a panel meter while operating a meter switch	0

Task (assumes equipment is energized and work is done within the <i>flash protection boundary</i>)	Hazard/ Risk Category
CB or fused switch or starter operation with enclosure doors open	4
Work on energized parts, including voltage testing	4
Work on control circuits with energized parts 120V or below, exposed	2
Work on control circuits with energized parts > 120V, exposed	4
Insertion or removal (racking) of starters from cubicles, doors open	4
Insertion or removal (racking) of starters from cubicles, doors closed	2
Application of safety grounds, after voltage test	4
Removal of bolted covers (to expose bare, energized parts)	4
Opening hinged covers (to expose bare, energized parts)	3
Opening voltage transformer or control power transformer compartments	4
Other Equipment 1 kV and Above	
Switch operation, doors closed	2
Work on energized parts, including voltage testing	4
Removal of bolted covers (to expose bare, energized parts)	4
Opening hinged covers (to expose bare, energized parts)	3
Outdoor disconnect switch operation (hookswitch operated)	3
Outdoor disconnect switch operation (gang-operated, from grade)	2
Insulated cable examination, in manhole or other confined space	4
Insulated cable examination, in open area	2

This table is derived from NFPA70E, Table 130.7(C)(9)(a)

Notes

2* - means that a double-layer switching hood and hearing protection are required for this task in addition to the other Hazard/Risk Category 2 requirements

TABLE 2

	Protective Systems for Hazard/Risk Category				
	0	1	2	3	4
<u>Protective Clothing and Equipment</u>					
<u>Non-melting or untreated natural fiber</u>					
a. T-shirt (short sleeve)			X	X	X
b. Shirt (long sleeve)	X				
c. Pants (long)	X	X ⁴	X ⁶	X	X
<u>Fire Resistant (FR) Clothing</u>					
a. Long-sleeve shirt		X	X	X ⁹	X
b. Pants		X ⁴	X ⁶	X ⁹	X
c. Coverall		₅	₇	X	₅
<u>Fire Resistant (FR) Protective Equipment</u>					
a. Flash suit jacket (multilayer)					X
b. Flash suit pants (multilayer)					X
c. Hard hat		X	X	X	X
d. Eye protection (safety glasses or safety goggles)	X	X	X	X	X
e. Face and head area protection					
1. Arc-rated face shield or flash suit hood			X ⁸		
2. Flash suit hood				X	X
3. Hearing protection (ear canal inserts)			X ⁸	X	X
f. Leather gloves (note 2)			X	X	X
g. Leather work shoes			X	X	X

Notes (table derived from NFPA 70E Table 130.7(C)(10))

2. Leather gloves must be worn in some cases, even if insulated voltage-rated gloves are not worn underneath
4. Regular weight untreated denim cotton blue jeans are acceptable in lieu of FR pants. The FR pants used for Hazard/Risk Category 1 shall have a minimum arc rating of 4
5. If desired, use FR coveralls instead of FR shirt and pants
6. If the FR pants have a minimum arc rating of 8, long pants of non-melting or untreated natural fiber are not required beneath the FR pants
7. If desired, use FR coveralls with a minimum arc rating of 4 over non-melting or untreated natural fiber pants and T-shirt
8. A faceshield with a minimum arc rating of 8, with wrap-around guarding to protect not only the face, but also the forehead, ears, and neck (or alternatively, a flash suit hood) is required
9. Alternate is to use two sets of FR coveralls (the minimum with an arc rating of 4 and outer coverall with a minimum arc rating of 5) over non-melting or untreated natural fiber clothing, instead of FR coveralls over FR shirt and FR pants over non-melting or untreated natural fiber clothing

TABLE 3

Hazard/Risk Category	Clothing Description (typical number of clothing layers given in parentheses)	Required Minimum Arc Rating of the Personal Protective Equipment cal/cm ²
0	Non-melting, flammable materials (i.e. untreated cotton, wool, rayon, or silk, or blends of these materials) with a fabric weight at least 4.5 oz/yd ² (1 layer)	n/a
1	FR shirt and FR pants or FR coverall (1 layer)	4
2	Cotton underwear – conventional short sleeve and brief/shorts, plus FR shirt and FR pants (1 or 2 layers)	8
3	Cotton underwear plus FR shirt and FR pants plus FR coverall, or cotton underwear plus two FR coveralls (2 or 3 layers)	25
4	Cotton underwear plus FR shirt and FR pants plus multilayer flash suit (3 or more)	40

This table is from NFPA 70E, table 130.7(C)(11)

- clothing, tools, barricades
- vault safety boards (see long list in other document)

SECTION VIII: CONTRACTORS and VENDORS

All contractors and vendors performing electrical work, on the airfield, must review this procedure and confirm that their policies and procedures are at least as stringent. Contractors will be given a copy of this program via email for their review in advance of the projected start date. No electrical work will be authorized to commence without the contents of this section being adhered to.

Upon completion of review, by all employees working on the airfield or in the electrical vault, the contractor must provide a letter of compliance. The contents of the letter will include the following:

A.. Assurance that all employees who will work on the airfield or in electrical vault have read and understand the procedures outlined in this program.

B. Assurance that all employees will comply with the procedures explained in this program.

C. Any request to deviate from the policies and procedures in this program will be done in writing to the DAA Safety Manager explaining the need to deviate and control measures that will be put in place to ensure a safe operation.

SECTION IX: IDENTIFICATION OF HAZARDOUS TASKS AND JOBS

This section lists jobs and tasks on the airfield that present significant electrical hazards.

- A. Placing a Circuit in an *Electrically Safe Work Condition* and Testing for the Presence of Hazardous Energy, including Circuit **Lockout**
- B. Hot Re-Lamping
- C. Re-Lamping with Circuits De-Energized
- D. Constant Current Regulator (CCR) Maintenance with CCR Energized
- E. Electrical Work in 30' Pit
- F. Ground Fault Detection Using the CCR
- G. Jumpering Circuits
- H. Continuity Testing of Series Lighting Circuits
- I. Manual Meggering® of Series Lighting Circuits
- J. Output Voltage Measurements on CCR
- K. Work at Heights from Bucket Truck
- L. Switching Leads from One CCR to Another

In the following section, procedures are written for each of these tasks

SECTION X: PROCEDURES

A. Placing a Circuit in an *Electrically Safe Work Condition* and Testing for the Presence of Hazardous Energy, including Circuit Lockout

Purpose

One of the most common causes of airfield lighting injuries is failing to test a circuit for energy before breaking the circuit. **Every time** a circuit is broken, it should be tested for the presence of hazardous energy. In a series lighting circuit, testing is a straightforward process, but it is unique and therefore presents hazards to inexperienced electricians and contractors. Series circuits can register zero or near-zero levels of voltage on sections of the circuit, so that the only sure way to verify the presence of hazardous energy is via the use of a true RMS ammeter.

Most airfield lighting maintenance tasks, including series circuits and other more traditional electrical machinery and distribution systems, should be performed under the protection of a circuit lockout. A lockout is one element in placing an electrical system in an ***electrically safe work condition*** (a state in which the conductor or circuit part to be worked on or near has been disconnected from energized parts, locked in accordance with the DAA lockout program, tested to ensure the absence of voltage, and grounded if determined necessary).

If a circuit cannot be worked in an *electrically safe work condition*, then an *Energized Electrical Work Permit* must be pulled (see Section VI).

Qualifications and Number of Employees to be Involved: Qualified electricians only – a minimum of two.

Hazards

- 1) 5 kV shock hazard should an electrician begin working on an airfield lighting circuit after mistakenly testing for the presence of energy by using a voltage testing device instead of a true RMS clamp-on ammeter or by otherwise not properly testing for the presence of hazardous energy.
- 2) 5 kV shock hazard to SRE employees and contract electricians from incomplete execution of circuit lockout

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2" for 5 kV circuits
Prohibited Approach Boundary:	0'7" for 5 kV circuits

Flash Protection Boundary: Typically 4' for voltages under 600V, but not applicable for lighting circuits, since constant current at 6-20 amps does not generate significant bolted fault current)

Safe Work Practices:

1. **Never remove or override a lockout** without positively verifying the whereabouts of all crew members, including contract personnel.

2. The electrician performing the work must have received specific training on how to perform the tasks, including the machine- or circuit-specific shutdown, lockout, and testing for the presence of current tasks.
3. A second, qualified electrician who is trained in emergency procedures must be standing by for any work on systems greater than 600V.
4. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'), which exists until the circuit is verified dead (de-energized). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *restricted approach boundary* (2'2" for 5 kV circuits).
5. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2" for 5 kV circuits).
6. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2" for 5 kV).
7. If it is possible for you to contact exposed energized parts before you verify that the circuit is dead (de-energized), wear voltage-rated insulated gloves and other insulating materials when inside the *restricted approach boundary*. (2'2" for 5 kV). For protection up to 7.5 kV, Class 1 gloves should be worn. Insulating gloves should be covered with leather outer-gloves.
8. **DANGER: Do not use a voltage meter as the primary means of testing a series lighting circuit for the presence of hazardous energy! A true RMS clamp-on ammeter must be used.** A series lighting circuit may indicate low and zero volts at numerous points in the circuit, even though the full electrical energy of the circuit is present.
9. All tools used prior to the circuit being verified dead (de-energized) must be insulated.
10. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
11. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.
12. Never work under a contractor's lockout procedure unless you have verified the lockout yourself and have placed your lock on the lockout devices.

Personal Protective Equipment Needed

1. Voltage-rated gloves with leather protective covers if exposed to energized conductors prior to testing the circuit dead (de-energized).
2. Fire-resistant safety glasses
3. Non-melting/untreated natural fiber t-shirt (long sleeve)
4. Non-melting/untreated natural fiber long pants

Insulating Tools and Equipment: All tools should be insulated if, prior to verifying the circuit dead, they are exposed to energized electrical conductors.

Special Precautionary Techniques: Beware of stored energy in capacitors in REIL's and beacons. Beware of secondary sources of voltage such as control voltage.

Electrical Diagrams: In many cases, multiple sources of electrical power are available in a circuit, including stored energy in capacitors (REILs and beacons), control voltage (typically 120 VAC or 48 VDC), and induced voltages from other circuits. For complex systems, it is

critical that accurate as-built drawings be consulted when placing a circuit in an *electrically safe work condition*.

Equipment Details: Electricians should be trained on the equipment they will be placing in an *electrically safe work condition*.

Other Reference Documents or Materials: none

Steps to Take When Placing a Circuit in an *Electrically Safe Work Condition*, including Locking it Out

1. Plan your work and work your plan. Expect the unexpected
2. De-energize the circuit using the normal shutdown procedure. To qualify as an *electrically safe work condition*, a physical disconnect mean must be used. Electronic circuitry cannot be used as a lockout means. Circuit breakers, disconnect switches, and pulled fuses are examples of disconnecting means that provide a physical break of the electrical circuitry.
3. Use accurate technical manuals or as-built drawings to de-energize machinery or circuits. Even simple machines and circuits may have multiple sources of energy such as control voltage and capacitors. Verify that the system will not have stored energy once shut down, such as charged capacitors, compressed springs, fluids under pressure, etc.
4. Protect against induced voltages (*how is this achieved on the airfield?*)
5. Some circuits require that stored or residual energy be dissipated. For example, capacitors must be discharged, springs disconnected, and flywheels allowed to coast to a stop. Using the procedure recommended by the manufacturer of the equipment or in accordance with other best practices, discharge the stored energy.
6. Place your lock and tag that identifies you on the disconnecting device (energy isolating device). In many cases, numerous locks and locking devices may be required to isolate all power sources.
7. If this is a group project, each person working on the system or equipment should place his or her lock and identifying tag on a group hasp or in a group lock box. Do not work under the protection of another's lock.
8. Always do the three steps below when using your test equipment on a circuit:
 - a. Test your meter on a known source to verify that it is functioning properly.
 - b. Test your meter on the circuit on which you will be working. **THIS IS A HAZARDOUS STEP!** You must not assume that the circuit is dead. Disconnect switches and circuit breakers can and do fail, leaving hazardous energy on the circuit.
 - c. After testing the circuit dead, re-test your meter on the known source again to verify that it is working.

9. If the circuit can be re-energized inadvertently via contact with adjacent circuits (such as falling wires) or via induced voltages, connect grounding rods or cables to the circuit being worked on (or otherwise protect the circuit) so that no potential can be created between you and the circuit).
10. Perform the work on the circuit. If you are leaving the site and must remove your lock, someone should place his or her lock and identifying tag on the lockout devices before you remove yours to ensure the continuity of the lockout.
11. Prior to clearing the lockout, verify that all personnel (including contractors) are clear of any danger.
12. Remove the locks and tags from the energy isolating devices.
13. Restart the system in accordance with the manufacturer's instructions, verify that the system is operating within allowable specifications.

B. Hot Re-Lamping

Purpose

Re-lamping airfield lights while the system is energized is a frequent cause of injury and death on airfields around the world. Additionally, physical damage to the fixtures occurs when they are re-lamped while energized. Hot re-lamping is usually done when the need to correct a lighting deficiency is urgent.

If de-energizing a lighting system will endanger an aircraft on approach or on the ground, or if it is operationally unsafe or infeasible to de-energize a lighting circuit, it may be worked on energized (*hot re-lamping*). The hazards discussed here also include the simple cleaning tasks on glass lenses, since the use of cleaning fluids will greatly increase the electrical shock hazard as body resistance will be lowered. If a lighting circuit will be worked in an energized state, additional precautions should be used to compensate for the increased risk.

Because the re-lamping is done without having the system in an *electrically safe work condition*, the practice should be eliminated, if possible, or at least minimized.

Qualifications and Number of Employees to be Involved: Qualified electricians only with specific training in this procedure – a minimum of two electricians due to work on energized circuits

Hazards: Secondary shock hazards up to 200V and primary-to-secondary short circuits, exposing electricians to voltages as follows:

1. On taxiways – 3 kV, with up to 6 kV if an electrician mistakenly attempts to break an energized circuit
2. On runways – 5 kV, with up to 10 kV if an electrician mistakenly attempts to break an energized circuit.

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	Not applicable (constant current at 6-20 amps – no significant bolted fault current)

Safe Work Practices:

1. Prior to starting the work, a determination must be made as to why this re-lamping procedure must be done with the circuit energized. A supervisor should make the determination that the task must be done while energized.
2. An energized electrical work permit should be issued, time permitting
3. The electrician performing the work must have received specific training on how to perform the hot re-lamping task
4. A second, qualified electrician who is trained in emergency procedures must be standing by
5. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no

- time should the unqualified person be allowed within the *restricted approach boundary* (2'2").
6. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2").
 7. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2").
 8. Class 1 voltage-rated gloves (for protection up to 7.5 kV) must be worn when inside the *restricted approach boundary* (2'2"). These insulating gloves should be covered with leather outer-gloves.
 9. The secondary side of the lamp should be tested to verify that a primary-to-secondary short does not exist. A VOM or DMM capable of testing up to the maximum expected voltage (3 kV on taxiways, 5 kV on runways) must be used.
 10. All tools must be insulated.
 11. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
 12. No energized electrical work may be done without proper illumination.
 13. No conductive jewelry or clothing may be worn
 14. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Personal Protective Equipment Needed

1. Class 1 voltage-rated gloves (for protection up to 7.5 kV) with leather protective covers;
2. Fire-resistant safety glasses
3. Non-melting/untreated natural fiber t-shirt (long sleeve)
4. Non-melting/untreated natural fiber long pants

Insulating Tools and Equipment: All tools should be insulated

Special Precautionary Techniques: None

Electrical Diagrams: If time permits, refer to available hardcopy or computer-based as-builts or blueprints, if necessary.

Equipment Details: The lamp is typically a 200V bulb, but is powered via a lighting transformer whose primary can be 5 kV.

Other Reference Documents or Materials: none

Steps to Take When Doing Hot Re-Lamping

1. Plan your work and work your plan. Expect the unexpected
2. Determine why the lamp needs to be replaced while energized and communicate this reason to your supervisor.

3. Obtain an Energized Electrical Work Permit (see Section VI). If there is not enough time to pull a permit, verbally review the steps of the permit with the supervisor, obtaining verbal approvals and confirmations on each step.
4. Proceed to the lamp that must be replaced. You must be a qualified electrician and must have received training in this procedure.
5. You must be accompanied by another qualified electrician.
6. Prior to breaching the *restricted approach boundary* (2'2"), inspect your Class 1 insulated gloves and put them on (do not use the gloves if they are ripped or damaged). Cover the gloves with leather outer gloves.
7. Repair the lamp, remaining aware of the possibility of the high voltage hazards associated with primary to secondary shorts.
8. Do not remove your gloves until you are finished working inside the *restricted approach boundary*.

C. Re-lamping Circuits while De-Energized but with CCR NOT Locked Out

Purpose

Re-lamping airfield lights is typically done without the power supply (the constant current regulator (CCR)) locked out due to the infeasibility of such a lockout. It is infeasible because for most re-lamping tasks, electricians on the airfield would need to lock out the CCR in the vault and then drive long distances to the airfield to do the re-lamping. The electrician would then need to drive back to the vault, clear the lockout, and drive back to the lamp to ensure that it is working.

By definition, performing work on electrical circuits without a system lockout means that the circuit is **NOT** in an *electrically safe work condition*. As such, **significant hazards remain with this task**. Therefore, additional precautions must be taken to provide a level of protection equivalent to an *electrically safe work condition*. An electrician who does not maintain control of the circuit on which he works by placing his or her own lock on the CCR disconnect is placing himself at additional risk.

Note: Although it is rarely possible to do re-lamping tasks with the circuit in an *electrically safe work condition* (that is, with the CCR locked out by the electrician doing the re-lamping), it remains the preferred method of doing re-lamping tasks. When re-lamping is done with the circuit in an *electrically safe work condition*, this procedure need not be followed. Only the procedure to place the circuit in an *electrically safe work condition* need be followed.

Qualifications and Number of Employees to be Involved

1. Qualified electricians only – a minimum of two - with specific training on this procedure.
2. If a tower employee will be overseeing the CCR while an electrician is working on the circuit it supplies, the tower employee must be trained on this procedure.

Hazards

Secondary shock hazards up to 200V and primary-to-secondary short circuits, exposing electricians to voltages as follows:

1. On taxiways – 3 kV, with up to 6 kV if an electrician mistakenly attempts to break an energized circuit
2. On runways – 5 kV, with up to 10 kV if an electrician mistakenly attempts to break an energized circuit.

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	Not applicable (constant current at 6-20 amps – no significant bolted fault current)

Safe Work Practices:

1. Because you will not have direct control over the power source of the lighting circuit on which you will be working, you must complete this task as quickly and safely as possible. Planning is essential.
2. Establish radio contact with the person overseeing the CCR in the vault or tower. A headset or other hands-free device should be used. Radio communications should be constant.
3. If the CCR cannot be locked out, it is preferable to do re-lamping tasks by de-energizing the CCR from the vault, as opposed to the tower. Tower personnel are not trained electricians and may have numerous other airfield tasks to consider including aircraft on approach and on the ground
4. A second, qualified electrician who is trained in emergency procedures is standing by during the re-lamping task.
5. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *restricted approach boundary* (2'2").
6. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2").
7. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2").
8. Class 1 voltage-rated gloves (for protection up to 7.5 kV) must be worn when inside the *restricted approach boundary* (2'2"). These insulating gloves should be covered with leather outer-gloves.
9. The secondary side of the lamp should be tested to verify that a primary-to-secondary short does not exist. A VOM or DMM capable of testing up to the maximum expected voltage (3 kV on taxiways, 5 kV on runways) must be used.
10. All tools must be insulated.
11. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
12. No energized electrical work may be done without proper illumination.
13. No conductive jewelry or clothing may be worn
14. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Personal Protective Equipment Needed

1. Class 1 voltage-rated gloves (for protection up to 7.5 kV) with leather protective covers;
2. Fire-resistant safety glasses
3. Non-melting/untreated natural fiber t-shirt (long sleeve)
4. Non-melting/untreated natural fiber long pants

Insulating Tools and Equipment: All tools should be insulated

Special Precautionary Techniques

1. If the CCR cannot be locked out, it is preferable to do re-lamping tasks by de-energizing the CCR from the vault, as opposed to the tower. Tower personnel are not trained electricians and may have numerous airfield tasks to consider.
2. Establish hands-free radio communications with the vault or tower so that constant contact can be maintained during the procedure

Electrical Diagrams: If time permits, refer to available hardcopy or computer-based as-builts or blueprints, if necessary.

Equipment Details: The lamp is typically a 200V bulb, but is powered via a lighting transformer whose primary can be 5 kV.

Other Reference Documents or Materials: none

Steps to Take When Doing Re-Lamping of De-Energized Circuits without CCR Lockout

1. Plan your work and work your plan. Expect the unexpected
2. This procedure should only be done if it is infeasible to lock out the constant current regulator (CCR). If possible, do the re-lamping tasks by de-energizing the CCR and locking it out with your own lock. If this is not feasible, continue with the steps below.
3. Establish radio contact with the person overseeing the shutdown of the CCR in the vault or tower (using another trained, qualified electrician in the vault is preferable to using tower personnel). A headset or other hands-free device should be used. Radio communications should be constant.
4. Proceed to the lamp that must be replaced. You must be a qualified electrician and must have received training in this procedure.
5. You must be accompanied by another qualified electrician.
6. Prior to breaching the *restricted approach boundary* (2'2"), inspect your Class 1 insulated gloves and put them on (do not use the gloves if they are ripped or damaged). Cover the gloves with leather outer gloves.
7. Test the circuit for the presence of current using a true RMS ammeter. If no current is detected, proceed with the re-lamping task. Be aware that because the CCR is not locked out, power could inadvertently be turned on at any time. Test the circuit for the presence of current each time you return to the task after walking away from it.

8. Repair the lamp, remaining aware of the possibility of the high voltage hazards associated with primary to secondary shorts.
9. When repair is complete, step outside the *restricted approach boundary* and ask the tower or vault to energize the circuit. Visually confirm that the lamp is lit.
10. Ask the tower or vault to de-energize the CCR
11. Do not remove your gloves until you are finished working inside the *restricted approach boundary*.
12. When outside the *restricted approach boundary*, inform the vault or tower that it is safe to re-energize the circuit. Visually verify that the lamp

D. Constant Current Regulator Maintenance with CCR Energized

Purpose

Basic maintenance on constant current regulators (CCR) presents 480 volt, 120 volt, and 48 VDC **shock, arc flash, and arc blast** hazards.

For most maintenance tasks, the CCR cabinet remains completely closed with no exposed electrical conductors. Calibration is typically done from control panels on or around the outside of the CCR. This procedure does not apply to those tasks if they are done with the CCR in an *electrically safe work condition*.

There are some tasks, however, that expose electricians to energized conductors inside the CCR cabinet. This procedure applies to those tasks that are done on or around CCR's when energized conductors are exposed.

The procedure for output voltage measurement tests on the CCR is a separate procedure. See item J later in this section.

Qualifications and Number of Employees to be Involved: Qualified electricians only with specific training in CCR maintenance

Hazards:

- 1) 480 VAC shock hazard from supply voltage in CCR
- 2) 120 VAC and 48 VDC shock hazard from control voltage
- 3) Arc flash and arc blast hazards

Limits of Approach:

	<u>480 VAC</u>	<u>120 VAC/48 VDC</u>
Limited Approach Boundary	5'	3'6"
Restricted Approach Boundary	1'	Avoid contact
Prohibited Approach Boundary	0'1"	Avoid contact
Flash Protection Boundary	4'	4'

Safe Work Practices:

1. Prior to starting the work, a determination must be made as to why this re-lamping procedure must be done with the circuit energized. A supervisor should make the determination that the task must be done while energized.
2. An energized electrical work permit should be issued, time permitting
3. The electrician performing the work must have received specific training on how to perform the hot re-lamping task
4. A second, qualified electrician who is trained in emergency procedures must be standing by
5. Exposed energized conductors are hazardous during even the simplest procedures, such as opening cabinet doors and voltage testing. Personal protective equipment must be worn as noted in the table below.
6. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *flash protection boundary*(4').
7. Do not cross the flash protection boundary without wearing the protective equipment as noted in the table below.
8. No un-insulated body parts are permitted past the *restricted approach boundaries*.
9. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundaries*.
10. Class 00 voltage-rated gloves (for protection up to 500V) must be worn when inside the *restricted approach boundary* (1'). These insulating gloves should be covered with leather outer-gloves.
11. All tools must be insulated when working on energized electrical equipment.
12. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
13. No energized electrical work may be done without proper illumination.
14. No conductive jewelry or clothing may be worn
15. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Personal Protective Equipment Needed

The table below addresses the hazards of working on the live supply side of a CCR, where there are high bolted fault currents available (as opposed to low fault currents available on the lighting side of the airfield lighting system). With high bolted fault currents come arc blast and arc flash hazards necessitating the use of personal protective equipment to protect electricians. **Note that even some simple tasks such as opening cabinets to expose live conductors are hazardous.** For these simple tasks, dangerous arc flash/arc blast potential exists, so that arc flash protective equipment must be worn.

For exposure to the voltages and conditions below, wear the protective equipment outline in the column below:

<u>120 VAC/48 VDC</u>	<u>480 VAC</u> - Removal of bolted covers - Work on energized parts - Applying grounds - Insert/remove parts, equip	<u>480 VAC</u> - Removal of hinged covers - Cable trough/tray removal or installation - Equipment cover removal or installation
<p><u>Note 1:</u> assumes no exposure to the live 480 V circuit</p> <ol style="list-style-type: none"> 1. Untreated cotton long pants 2. Fire Resistant (FR) long-sleeved shirt 3. FR pants (if arc flash rating of FR pants > 8, long pants need not be worn below FR pants) 4. FR coveralls can replace FR pants and shirt (as long as arc rating is > 4) 5. FR hard hat 6. FR safety glasses 	<ol style="list-style-type: none"> 1. Untreated cotton long pants 2. Fire Resistant (FR) long-sleeved shirt 3. FR pants (if arc flash rating of FR pants > 8, long pants need not be worn below FR pants) 4. FR coveralls can replace FR pants and shirt (as long as arc rating is > 4) 5. FR hard hat 6. FR safety glasses or goggles 7. Arc rated face shield or flash hood (minimum arc rating of 8) 8. Hearing protection (in ear canal) 	<ol style="list-style-type: none"> 1. Untreated cotton long pants 2. Fire Resistant (FR) long-sleeved shirt 3. FR pants (if arc flash rating of FR pants > 8, long pants need not be worn below FR pants) 4. FR coveralls can replace FR pants and shirt (as long as arc rating is > 4) 5. FR hard hat 6. FR safety glasses

Insulating Tools and Equipment: All tools should be insulated

Special Precautionary Techniques: There are numerous CCR types on the airfield, so refer to the specific CCR tech manual for guidance

Electrical Diagrams: Refer to the CCR technical manual to ensure that all energy sources are properly considered.

Equipment Details: There are numerous CCR types on the airfield, so refer to the specific CCR tech manual for guidance

Other Reference Documents or Materials: none

Steps to Take When Performing Maintenance on an Energized CCR

1. Plan your work and work your plan. Expect the unexpected
2. Determine why the CCR needs to be maintained while energized and communicate this reason to your supervisor. This procedure should only be done if it is infeasible to lock out the constant current regulator (CCR). If possible, do the maintenance tasks by de-energizing the CCR and locking it out with your own lock. If this is not feasible, continue with the steps below
3. Obtain an Energized Electrical Work Permit (see Section VI). If there is not enough time to pull a permit, verbally review the steps of the permit with the supervisor, obtaining verbal approvals and confirmations on each step.
4. Proceed to the CCR to be worked on. You must be a qualified electrician and must have received training in this procedure.
5. You must be accompanied by another qualified electrician if the work is done while the CCR is energized
6. Prior to breaching the *flash protection boundary (4')*, don the flash protective equipment as noted in the table above. Simply opening CCR panels to expose 480V conductors presents an arc flash/arc blast hazard. Note that for some of the 480 V exposures, a flash hood and hearing protection is required in addition to other fire resistant gear. Arc flash protective equipment, including FR coveralls, an FR hardhat, ear canal hearing protection, and an FR arc-rated face shield or flash hood with a minimum arc flash rating of 8 (see the table above), should be provided in each of the vaults
7. Prior to breaching the *restricted approach boundary (1')*, inspect your Class 00 insulated gloves and put them on (do not use the gloves if they are ripped or damaged). Cover the gloves with leather outer gloves.
8. Repair/maintain the CCR in accordance with the manufacturer's instructions.
 - a. When performing the short circuit test across the leads, the CCR must be placed in an *electrically safe work condition* before removing the leads and hooking up the short circuit wiring
 - b. When performing the open circuit test, the CCR must be placed in an *electrically safe work condition* before removing the CCR leads.
9. Do not remove your gloves until you are finished working inside the *restricted approach boundary*.
10. Do not remove the arc flash protective gear until all energized conductors are covered by the CCR cabinet.

E. Electrical Work in 30' Pit- NOT APPLICABLE AT THIS TIME

Purpose

Some necessary electrical work is done in a 30' pit on the airfield, including pulling wire and installing circuits and equipment

Qualifications and Number of Employees to be Involved: Only electricians who have had specific training related to electrical tasks in this 30' pit, including confined space entry training.

Hazards: Confined spaces; energized electrical work in a confined space.

Confined space hazards. A confined space is defined as follows:

- i. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- ii. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- iii. Is not designed for continuous employee occupancy. (from OSHA 1910.146)

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	4' - If tasks consist only of constant current circuitry, arc flash personnel protective equipment may not be necessary.

Safe Work Practices:

1. Prior to starting the work, a determination must be made as to why any work must be done with the circuit energized. Circuits to be considered include those circuits to be worked on as well as adjacent circuits to which an electrician might be exposed. A supervisor should make the determination that the task must be done while energized.
2. An energized electrical work permit should be issued, time permitting
3. Refer to the _____ AIRPORT/_____ Airport Confined Space Entry Procedure. A hazardous gas detector (sniffer) should be placed into the pit prior to entry. Readings should be logged until they are stable and within allowable limits. Ventilation should be provided into the pit during the electrical maintenance tasks. Sniffer readings should be taken continuously and logged at regular intervals to ensure that the sniffer is continuing to function. , but the sniffer is not left behind while work is being done. Ventilation is available during the task, but if the gas detector does not remain in the space, a hazard may develop while the work is being done.

4. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *flash protection boundary*(4').
5. Do not cross the flash protection boundary without wearing arc flash protective equipment . Such equipment will not be necessary if only airfield lighting circuits are in the pit.
6. No un-insulated body parts are permitted past the *restricted approach boundaries*.
7. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundaries*.
8. Voltage-rated gloves must be worn when inside the *restricted approach boundary* (1'). And when working on energized electrical equipment. Insulating gloves should be covered with leather outer-gloves.
9. All tools must be insulated when working on energized electrical equipment.
10. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
11. No energized electrical work may be done without proper illumination.
12. No conductive jewelry or clothing may be worn

Personal Protective Equipment Needed

The table below addresses the hazards of working near energized electrical circuits with potentially high fault currents (as opposed to low fault currents available on the lighting side of the airfield lighting system). With high bolted fault currents come arc blast and arc flash hazards necessitating the use of personal protective equipment to protect electricians. **Note that even some simple tasks such as opening cabinets to expose live conductors are hazardous.** For these simple tasks, dangerous arc flash/arc blast potential exists, so that arc flash protective equipment must be worn.

For exposure to the voltages and conditions below, wear the protective equipment outline in the column below:

<u>120 VAC/48 VDC</u>	<u>480 VAC</u> - Removal of bolted covers - Work on energized parts - Applying grounds - Insert/remove parts, equip	<u>480 VAC</u> - Removal of hinged covers - Cable trough/tray removal or installation - Equipment cover removal or installation
Note 1: assumes no exposure to the live 480 V circuit <ol style="list-style-type: none"> 1. Untreated cotton long pants 2. Fire Resistant (FR) long-sleeved shirt 3. FR pants (if arc flash rating of FR pants > 8, long pants need not be worn below FR pants) 4. FR coveralls can replace FR pants and shirt (as long as arc rating is > 4) 5. FR hard hat 6. FR safety glasses 	<ol style="list-style-type: none"> 1. Untreated cotton long pants 2. Fire Resistant (FR) long-sleeved shirt 3. FR pants (if arc flash rating of FR pants > 8, long pants need not be worn below FR pants) 4. FR coveralls can replace FR pants and shirt (as long as arc rating is > 4) 5. FR hard hat 6. FR safety glasses or goggles 7. Arc rated face shield or flash hood (minimum arc rating of 8) 8. Hearing protection (in ear canal) 	<ol style="list-style-type: none"> 1. Untreated cotton long pants 2. Fire Resistant (FR) long-sleeved shirt 3. FR pants (if arc flash rating of FR pants > 8, long pants need not be worn below FR pants) 4. FR coveralls can replace FR pants and shirt (as long as arc rating is > 4) 5. FR hard hat 6. FR safety glasses

Insulating Tools and Equipment: All tools should be insulated when working on or near energized conductors.

Special Precautionary Techniques: In addition to electrical precautions, adhere to confined space precautions

Electrical Diagrams: Refer to as-built drawings

Equipment Details: None

Other Reference Documents or Materials: Constant current regulator technical manual

Steps to Take When Working in the 30' Pit

1. Plan your work and work your plan. Expect the unexpected
2. If energized electrical work is being considered, determine why the circuit needs to be worked on while energized and communicate this reason to your supervisor. This procedure should only be done if it is infeasible to lock out the circuit. If possible, do the maintenance tasks by de-energizing the circuit and locking it out with your own lock. If lockout is not feasible, continue with the steps below.
3. Obtain an Energized Electrical Work Permit (see Section ___ below). If there is not enough time to pull a permit, verbally review the steps of the permit with the supervisor, obtaining verbal approvals and confirmations on each step. You must be accompanied by another qualified electrician if the work is done while in the pit is energized
4. Prior to breaching the *flash protection boundary* (4'), don the flash protective equipment as noted in the table above. Simply opening CCR panels to expose 480V conductors Obtain a Confined Space Entry Permit (see the _____ AIRPORT/_____ Airport Confined Space Entry Program).
 - a. Calibrate the air testing equipment prior to dropping it into the pit
 - b. Obtain air quality readings from the readouts on the sniffer. When acceptable, proceed into the space. If acceptable readings cannot be obtained, introduce ventilation until acceptable readings are obtained. Once acceptable air readings are obtained, enter the pit.
 - c. The sniffer should continuously monitor the space and alarm if and when the air quality deteriorates. EXIT THE PIT IMMEDIATELY UPON HEARING A SNIFFER ALARM OR IF YOU FEEL FAINT OR NAUSEOUS!
 - d. Ensure that the rescue and buddy system procedures are in place
5. Presents an arc flash/arc blast hazard. Note that for some of the 480 V exposures, a flash hood and hearing protection is required in addition to other fire resistant gear. Arc flash protective equipment, including FR coveralls, an FR hardhat, ear canal hearing protection, and an FR arc-rated face shield or flash hood with a minimum arc flash rating of 8, should be provided.
6. Prior to breaching the *restricted approach boundaries*, inspect your insulated gloves and put them on (do not use the gloves if they are ripped or damaged). Cover the gloves with leather outer gloves.
7. Perform the required electrical maintenance tasks in the pit.
8. Do not remove your gloves until you are finished working inside the *restricted approach boundary*.
9. Do not remove the arc flash protective gear until all energized conductors are covered by the CCR cabinet.
10. Exit the pit immediately upon finishing the tasks.

F. Ground Fault Detection Using the CCR

Purpose

In some cases when the situation is urgent, the constant current regulator (CCR) is used to locate single ground faults. This presents a hazard to employees in the vault and on the airfield who are trying to locate the ground faults visually. Because there are safer methods by which to locate ground faults, using the CCR to locate them should be avoided as much as possible. Ground faults should be located by less hazardous techniques such as via the automated Megger® test system or by using volt-ohm-milliammeters (VOM) or digital multimeters (DMM). If one of these tests indicates the presence of a ground, but the ground fault cannot be found by inspecting the circuit visually, the ground can be located by using the CCR and a test setup.

Qualifications and Number of Employees to be Involved:

1. Qualified electricians— a minimum of two in the vault - with specific training on this procedure.
2. Electricians on the airfield to observe specific sets of lights during the test

Hazards:

- 1) 5 kV shock hazard in the vault due to the CCR output being grounded (via a 45 Watt isolation transformer and light fixture). Electricians must stay away from the immediate vicinity of the grounded lamp setup.
- 2) 5 kV shock hazard in the field should electricians locate the open circuit and begin working on it before the CCR is de-energized from the vault.

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	Not applicable (constant current at 6-20 amps – no significant bolted fault current)

Safe Work Practices:

1. Determine whether it is possible to locate ground faults using one of the safer methods employing a Megger®, volt-ohm-milliammeter (VOM), or digital multimeter (DMM). If not, proceed with the steps below.
2. A second, qualified electrician who is trained in emergency procedures is standing by in the vault during the test.
3. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *restricted approach boundary* (2'2").
4. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2").
5. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2").
6. Class 1 voltage-rated gloves (for protection up to 7.5 kV) must be worn when inside the *restricted approach boundary* (2'2"). These insulating gloves should be covered with leather outer-gloves.
7. All tools must be insulated.
8. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
9. No energized electrical work may be done without proper illumination.
10. No conductive jewelry or clothing may be worn
11. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Personal Protective Equipment Needed

- 1) Non-melting/untreated natural fiber t-shirt (long sleeve)
- 2) Non-melting/untreated natural fiber long pants
- 3) Fire resistant (FR) safety glasses

Insulating Tools and Equipment: All tools should be insulated

Special Precautionary Techniques

1. An electrician will need to work on the airfield itself to detect grounds by observing whether or not lights are on or off. This electrician must not attempt to conduct repairs on the circuit without first placing the circuit in an *electrically safe work condition*. Refer to the procedures for *Hot Re-Lamping* and *Re-Lamping with Circuits De-Energized* above

Electrical Diagrams: If available, a basic diagram depicting the lighting circuit being tested will assist with ground fault location.

Equipment Details: The lamp is typically a 200V bulb, but is powered via a lighting transformer whose primary can be 5 kV.

Other Reference Documents or Materials: Constant current regulator technical manual

Steps to Take When Doing Re-Lamping of De-Energized Circuits without CCR Lockout

1. Plan your work and work your plan. Expect the unexpected
2. Determine whether it is possible to locate ground faults using one of the safer methods employing a Megger®, volt-ohm-milliammeter (VOM), or digital multimeter (DMM). If not, proceed with the steps below.
3. Obtain permission to use the energized CCR to locate ground faults.
4. There must be two qualified electricians in the vault during this procedure.
5. Before rigging the test setup, place the CCR in an *electrically safe work condition*. Typically, a 45 watt isolation transformer and light fixture are connected between one of the regulator outputs and ground.
6. Clear the lockout and stand well clear of the test setup. If the test lamp lights, there is at least one ground fault on the circuit.
7. With the regulator energized, electricians on the airfield can locate the ground fault by observing the pattern of lamps that are lit or not lit. This test may be done numerous times to locate multiple ground faults. The test setup should be switched from one CCR output lead to another to verify that multiple ground faults do not exist.
8. Once the ground faults are located in the field, place the CCR in an *electrically safe work condition* prior to repairing the grounded equipment.
9. Once the circuit is in an *electrically safe work condition*, repair the ground by checking the cable, connector kits, splices, etc.

When repairs are complete and field electricians are clear of the equipment, re-test the circuit using steps 3-8 above. Specific training should be provided for grounded output test used to locate ground faults. Electricians should be advised of the need to stay away from the grounded test setup in the vault, since the CCR may generate high voltages as it attempts to overcome the resistance of any high resistance faults.

F. Jumpering Circuits

Purpose

Airfield lighting must sometimes be re-aligned using jumpers. The task requires both knowledge of the specific airfield circuits being jumpered, as well as a familiarity with the hazards of series circuits to avoid incidents related to improper disconnection of a series lighting circuit.

Qualifications and Number of Employees to be Involved:

Qualified electricians only – a minimum of two whenever working with voltages greater than 600V - with specific training on this procedure.

Hazards:

- 1) 5 kV shock hazard from disconnecting the wrong airfield lighting cable
- 2) 5 kV shock hazard while working with splices and other non-standard connections
- 3) Shock and arc flash/blast hazards while working in vaults (vaults contain numerous and varied circuit types, including lighting and non-lighting circuits).
- 4) Confined space hazards
 - a. Confined space hazards – Airfield spaces through which jumpering is done may need to be classified as *permit-required confined spaces*. A confined space is defined as follows:
 - i. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
 - ii. Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
 - iii. Is not designed for continuous employee occupancy. (from OSHA 1910.146)

Limits of Approach:

Limited Approach Boundary:	5'0" (may increase if circuit voltages encountered > 72.5 kV)
Restricted Approach Boundary:	2'2" (may increase if other circuit voltages encountered > 15 kV)
Prohibited Approach Boundary:	0'7" (may increase if other circuit voltages encountered > 15 kV)
Flash Protection Boundary:	Not applicable if only series circuits are encountered. If other non-lighting circuits exist in manholes, pits, or vaults, flash protection boundaries <u>will</u> be necessary. The voltage levels of the non-lighting circuits and the alignment of the space in which the jumpering is done will dictate the flash protection equipment required.

Safe Work Practices:

1. If spaces where the jumpering is to be done are classified as confined spaces, do not enter until the atmosphere in the space is tested clean. Refer to the DAA Confined Space Entry Program.
2. A second, qualified electrician who is trained in emergency procedures is standing by during all tasks.
3. Use only approved connector kits, splices, and glues
4. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *restricted approach boundary* (2'2").
5. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2").
6. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2").
7. Class 1 voltage-rated gloves (for protection up to 7.5 kV) must be worn when inside the *restricted approach boundary* (2'2"). These insulating gloves should be covered with leather outer-gloves.
8. All tools must be insulated when working on or near energized parts. No un-insulated tools inside the *restricted approach boundary*.
9. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
10. No energized electrical work may be done without proper illumination.
11. No conductive jewelry or clothing may be worn
12. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Personal Protective Equipment Needed

Depends on the flash hazards present in the manholes, vaults, and other spaces in which the jumpering is done. For example, if non-lighting cables carrying more than 1 kV must be handled, flash suits will be required. If any of the pits/manholes/vaults contain any exposed circuitry or bussing, flash protection will be required. At a minimum:

- 1) Non-melting/untreated natural fiber t-shirt (long sleeve)
- 2) Non-melting/untreated natural fiber long pants
- 3) Fire resistant (FR) safety glasses

Insulating Tools and Equipment: All tools should be insulated

Special Precautionary Techniques

1. Electrical: exposed energized conductors; high voltage cables; different types of electricity requiring different measuring devices (series circuits, parallel circuits, high-voltage circuits)
2. Confined space hazards (hazardous atmospheres, entrapment, engulfment)

Electrical Diagrams: As-built diagrams should be made available to field electricians performing the work.

Equipment Details: Use only approved connector kits and splices

Other Reference Documents or Materials: None

Steps to Take When Jumpering Circuits

1. Plan your work and work your plan. Expect the unexpected. Use as-built drawings to determine the circuits to be jumpered and the paths that will be taken. Obtain approved connector kits, splices, insulated tools, and safety equipment. If non-lighting circuits will be encountered, arc flash/arc blast protective equipment will be needed.
2. Place the circuits to be jumpered in an *electrically safe work condition*. There must be two qualified electricians working the tasks whenever working with voltages greater than 600V or when working with exposed energized conductors.
3. If entering any confined space, obtain a Confined Space Entry Permit (see the DAA Confined Space Entry Program).
 - a. Calibrate the air testing equipment prior to dropping it into the pit
 - b. Obtain air quality readings from the readouts on the sniffer. When acceptable, proceed into the space. If acceptable readings cannot be obtained, introduce ventilation until acceptable readings are obtained. Once acceptable air readings are obtained, enter the pit.
 - c. The sniffer should continuously monitor the space and alarm if and when the air quality deteriorates. EXIT THE PIT IMMEDIATELY UPON HEARING A SNIFFER ALARM OR IF YOU FEEL FAINT OR NAUSEOUS!

- d. Ensure that the rescue and buddy system procedures are in place
- 4. If any exposed conductors will be encountered during the jumpering work, arc flash/arc blast protective gear may be required. If working in pits, vaults, voids, or other tight enclosures, ensure that there are no other exposed conductors.
- 5. Using the proper testing equipment, verify that the circuits to be jumpered are dead (de-energized).

Leave any confined spaces immediately after completing the jumper

G. Continuity Testing of Series Lighting Circuits

Purpose

Continuity testing of airfield lighting circuits is done regularly. In all cases, the circuit is de-energized and locked out.

Qualifications and Number of Employees to be Involved:

1. Putting the circuit in an *electrically safe work condition*: Qualified electricians only
2. Other electricians may perform the actual continuity testing but must have received training on this procedure.

Hazards:

5 kV shock hazard should an electrician fail to de-energize the circuit prior to conducting a continuity test.

Limits of Approach:

Since this procedure is done with circuit in an *electrically safe work condition*, limits of approach are not applicable. **Note, however, that if adjacent electrical hazards exist, limits of approach for those hazards must be calculated and adhered to**

Protective Clothing and Equipment Required

Not needed if circuit is in an *electrically safe work condition*

Safe Work Practices:

1. Ensure that the test equipment is designed for and capable of testing the circuits being worked on
2. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
3. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Insulating Tools and Equipment: Not needed if circuit is in an *electrically safe work condition*

Special Precautionary Techniques: None

Electrical Diagrams: As-built diagrams should be made available to field electricians performing the work.

Equipment Details: None

Other Reference Documents or Materials: None

Steps to Take When Doing Continuity Tests on Airfield Lighting Circuits

1. Plan your work and work your plan. Expect the unexpected. Use as-built drawings to determine the circuits to be tested.
2. Place the circuits to be tested in an *electrically safe work condition*.
3. If entering any confined space, obtain a Confined Space Entry Permit (see the DAA Confined Space Entry Program).
4. If any exposed conductors will be encountered during the testing work, arc flash/arc blast protective gear may be required. If working in pits, vaults, voids, or other tight enclosures, ensure that there are no other exposed conductors.
5. Using the proper testing equipment, verify that the circuits to be test are dead (de-energized).
6. Perform the continuity testing in accordance with the test equipment manufacturer's instructions.

H. Manual Meggering® of Series Lighting Circuits

Purpose

Manual Meggering® of airfield lighting circuits is done regularly. In all cases, the circuit is de-energized and locked out.

Qualifications and Number of Employees to be Involved:

1. Putting the circuit in an *electrically safe work condition*: Qualified electricians only
2. Other electricians may perform the actual Meggering® but must have received training on this procedure.

Hazards:

5 kV shock hazard should an electrician Megger® the circuit while energized

Limits of Approach:

Since this procedure is done with circuit in an *electrically safe work condition*, limits of approach are not applicable. **Note, however, that if adjacent electrical hazards exist, limits of approach for those hazards must be calculated and adhered to**

Protective Clothing and Equipment Required

Not needed if circuit is in an *electrically safe work condition*

Safe Work Practices:

1. Ensure that the test equipment is designed for and capable of testing the circuits being worked on
2. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
3. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Insulating Tools and Equipment: Not needed if circuit is in an *electrically safe work condition*

Special Precautionary Techniques: None

Electrical Diagrams: As-built diagrams should be made available to field electricians performing the work.

Equipment Details: None

Other Reference Documents or Materials: None

Steps to Take When Doing Manual Meggering® on Airfield Lighting Circuits

1. Plan your work and work your plan. Expect the unexpected. Use as-built drawings to determine the circuits to be tested.
2. Place the circuits to be tested in an *electrically safe work condition*.
3. If entering any confined space, obtain a Confined Space Entry Permit (see the DAA Confined Space Entry Program).
4. If any exposed conductors will be encountered during the testing work, arc flash/arc blast protective gear may be required. If working in pits, vaults, voids, or other tight enclosures, ensure that there are no other exposed conductors.
5. Using the proper testing equipment, verify that the circuits to be test are dead (de-energized).
6. Perform the Meggering® in accordance with the test equipment manufacturer's instructions.

I. Output Voltage Measurements on CCR

Purpose

Airfield lighting electricians sometimes need to take output voltage measurements on constant current regulators (CCR) to troubleshoot an overheating or erratically operating CCR or to determine why a CCR is not maintaining design output current. CCR's develop high voltages that can cause severe injury and electrocution. Consequently, potential voltage transformers must be used to obtain voltage measurements.

Qualifications and Number of Employees to be Involved: Qualified electricians only - a minimum of two – trained in this procedure

Hazards:

1. High voltage electrical shock hazards from contact across the output terminals of CCR's.
2. Arc flash and arc blast hazards if maintenance is performed with cabinet doors or panels removed

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	Not applicable if cabinet doors remain closed and panels remain on, since only constant currents at 6-20 amps – no significant bolted fault current are expected for this task. If panel covers are off or CCR doors are open, the flash protection boundary should be established at four (4') feet.

Protective Clothing and Equipment Required

Only the basic protective clothing in #1-3 below is needed if circuit is in an *electrically safe work condition* and observations are done outside the restricted approach boundary. **Note that if the CCR cabinet is open, however, electricians are exposed to arc flash and arc blast hazards.** Refer to the CCR Maintenance procedure earlier in this section if CCR cabinets are to remain open during the test procedure.

- 2) Non-melting/untreated natural fiber t-shirt (long sleeve)
- 3) Non-melting/untreated natural fiber long pants
- 4) Fire resistant (FR) safety glasses

Safe Work Practices:

1. Use a voltage measurement transformer recommended by the CCR manufacturer. Typically this is a transformer with a 40:1 ratio and a primary voltage rating of 4800 volts.

2. **Never attempt to measure the voltage across the output terminals of a CCR without the load connected!** If an open circuit exists, voltages as high as 10 kV can be reached before an open circuit shutdown occurs.
3. Use only true RMS current measurement equipment to verify whether or not a series circuit is dead (de-energized).
4. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
5. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Insulating Tools and Equipment: Voltage measurement equipment must be insulated. Other equipment need not be insulated if circuit is in an *electrically safe work condition* and the *restricted approach boundary* is not breached.

Special Precautionary Techniques: The CCR can reach dangerous voltages (up to 10 kV) before protective features operate. Ensure the CCR is in an *electrically safe work condition* prior to attaching the potential voltage measurement transformer. Use a transformer having a 40:1 ratio and a primary voltage rating of 4800 volts.

Electrical Diagrams: None

Equipment Details: Review the specific voltage measurement procedure in the CCR technical manual

Other Reference Documents or Materials: None

Steps to Take When Taking Output Voltage Measurements on a CCR

1. Plan your work and work your plan. Expect the unexpected. Use the technical manual for the specific CCR on which you are working, since many CCR's are different.
2. Prior to starting the CCR output voltage measurement procedure, ensure that all lamps in the circuit supplied by the CCR are working (this is to ensure more accurate measurements of output voltage).
3. Place the CCR is in an *electrically safe work condition*. This includes keeping the CCR cabinet doors closed and panels on. If cabinet doors are to remain open or cabinet panels are to remain off during the test, arc flash/arc blast protective clothing must be worn if approaching within 4' of the CCR (see the CCR Maintenance procedure earlier in this section).
4. With the CCR in an *electrically safe work condition*, attach the output measurement transformer.
5. Re-energize the CCR and increase the brightness to the highest step.
6. Record the voltage measured and multiply it by the current associated with the brightness step of the CCR.

J. Work at Heights from Bucket Truck

Purpose

On occasion, electricians work from a bucket truck on series street lighting circuits around the airfield. Re-lamping airfield lights is typically done without the power supply (the constant current regulator (CCR)) locked out due to the infeasibility of such a lockout. It is infeasible because for most re-lamping tasks, electricians on the airfield would need to lock out the CCR in the vault and then drive long distances to the airfield to do the re-lamping. The electrician would then need to drive back to the vault, clear the lockout, and drive back to the lamp to ensure that it is working.

By definition, performing work on electrical circuits without a system lockout means that the circuit is NOT in an *electrically safe work condition*. As such, **significant hazards remain with this task**. Therefore, additional precautions must be taken to provide a level of protection equivalent to an *electrically safe work condition*. An electrician who does not maintain control of the circuit on which he works by placing his or her own lock on the CCR disconnect is placing himself at additional risk.

Note: Although it is rarely possible to do re-lamping tasks with the circuit in an *electrically safe work condition* (that is, with the CCR locked out by the electrician doing the re-lamping), it remains the preferred method of doing re-lamping tasks. When re-lamping is done with the circuit in an *electrically safe work condition*, this procedure need not be followed. Only the procedure to place the circuit in an *electrically safe work condition* need be followed.

Qualifications and Number of Employees to be Involved: Qualified electricians only - a minimum of two – trained in this procedure

Hazards:

- 1) Fall-from-heights while working from bucket
- 2) 5 kV electrical shock hazard from series circuit being worked on
- 3) Shock hazard from secondary side (lamps)

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	Not applicable (constant current at 6-20 amps – no significant bolted fault current)

Personal Protective Equipment Needed

1. Class 1 voltage-rated gloves (for protection up to 7.5 kV) with leather protective covers;
2. Fire-resistant safety glasses
3. Non-melting/untreated natural fiber t-shirt (long sleeve)
4. Non-melting/untreated natural fiber long pants

Safe Work Practices:

1. Refer to the DAA Fall Protection Program prior to commencing work.
2. Fall protection equipment must be worn and attached to the anchor inside the bucket at all times before raising the bucket, even if being raised to a height less than six (6') feet. This is to prevent you from being thrown from the bucket.
3. Use a full body harness only. Do not use a back belt – serious injuries can result if you fall and are arrested by a back belt.
4. If possible, all work from the bucket truck should be done with circuits in an *electrically safe work condition*.
5. Use only true RMS current measurement equipment to verify whether or not a series circuit is dead (de-energized).
6. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
7. Because you will not have direct control over the power source of the lighting circuit on which you will be working, you must complete this task as quickly and safely as possible. Planning is essential.
8. Establish radio contact with the person overseeing the CCR in the vault. A headset or other hands-free device should be used. Radio communications should be constant.
9. A second, qualified electrician who is trained in emergency procedures is standing by during the re-lamping task.
10. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *restricted approach boundary* (2'2").
11. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2").
12. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2").
13. Class 1 voltage-rated gloves (for protection up to 7.5 kV) must be worn when inside the *restricted approach boundary* (2'2"). These insulating gloves should be covered with leather outer-gloves.

14. The secondary side of the lamp should be tested to verify that a primary-to-secondary short does not exist. A VOM or DMM capable of testing up to the maximum expected voltage must be used.
15. All tools must be insulated.
16. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.
17. No energized electrical work may be done without proper illumination.
18. No conductive jewelry or clothing may be worn
19. If working in confined or enclosed spaces such as manholes or vaults, ensure there are no other exposed energized conductors in the vicinity.

Insulating Tools and Equipment: Required

Special Precautionary Techniques: Refer to the DAA Fall Protection Program. Fall protection equipment must be worn at all times, properly attached to the anchor in the bucket.

Electrical Diagrams: If available, use as-built drawings to confirm which lighting circuits are supplied by a specific CCR

Equipment Details: None

Other Reference Documents or Materials: None

Steps to Take When Performing Lamp Replacement from the Bucket Truck

1. Plan your work and work your plan. Expect the unexpected. Because you will not have direct control over the power source of the lighting circuit on which you will be working, you must complete this task as quickly and safely as possible. Planning is essential.
2. If possible, place the CCR powering the lighting circuit in an *electrically safe work condition*. If this is not possible, establish radio contact with the person overseeing the CCR in the vault or tower. A headset or other hands-free device should be used. Radio communications should be constant. A second, qualified electrician who is trained in emergency procedures is standing by during the re-lamping task.
3. Inspect your fall protection equipment. Put it on and attach it to the anchor in the bucket truck only if it is free of defects.
4. Prior to breaching the *restricted approach boundary* (2'2"), inspect your Class 1 insulated gloves and put them on (do not use the gloves if they are ripped or damaged). Cover the gloves with leather outer gloves.

5. Test the circuit for the presence of current using a true RMS ammeter. If no current is detected, proceed with the re-lamping task. Be aware that because the CCR is not locked out, power could inadvertently be turned on at any time. Test the circuit for the presence of current each time you return to the task after walking away from it.
6. Repair the lamp, remaining aware of the possibility of the high voltage hazards associated with primary to secondary shorts.
7. When repair is complete, step outside the *restricted approach boundary* and ask the electrician in the vault to energize the circuit. Visually confirm that the lamp is lit.
8. Ask the vault to de-energize the CCR
9. Do not remove your gloves until you are finished working inside the *restricted approach boundary*.
10. When outside the *restricted approach boundary*, inform the vault that it is safe to re-energize the circuit.
11. Lower the bucket to the ground before removing fall protection harness.

K. Switching Leads from One CCR to Another

Purpose

This task is done rarely, but there are instances where the leads from one constant current regulator (CCR) are switched to a backup CCR or to an adjacent CCR. The task is easily and safely accomplished when both CCR's are placed in an *electrically safe work condition*, but is hazardous if done improperly or if cable leads are improperly handled or identified.

Qualifications and Number of Employees to be Involved: Qualified electricians only - a minimum of two – trained in this procedure

Hazards:

1. Up to 10 kV shock hazard if leads are disconnected while the CCR is still energized (open circuit protective devices often do not function until voltage levels reach 10 kV)
2. 5 kV shock hazard from handling groups of cables that are not de-energized (such as those in the patch panel or behind the CCR's)

Limits of Approach:

Limited Approach Boundary:	5'0"
Restricted Approach Boundary:	2'2"
Prohibited Approach Boundary:	0'7"
Flash Protection Boundary:	Not applicable (constant current at 6-20 amps – no significant bolted fault current)

Personal Protective Equipment Needed

2. Class 1 voltage-rated gloves with leather covers
3. Fire-resistant safety glasses
4. Non-melting/untreated natural fiber t-shirt (long sleeve)
5. Non-melting/untreated natural fiber long pants

Safe Work Practices:

1. Place the CCR in an *electrically safe work condition* prior to switching leads
2. A second, qualified electrician who is trained in emergency procedures is standing by during the re-lamping task.
3. Class 1 voltage-rated gloves (for protection up to 7.5 kV) must be worn due to the nature of the task. Numerous cables must be handled behind the regulator and inside the patch panel when performing this task.

4. No one other than a qualified electrician is permitted within the *limited approach boundary* (5'). If an unqualified person needs to come within the *limited approach boundary*, he or she should be advised of the hazards and continuously escorted by a qualified person. At no time should the unqualified person be allowed within the *restricted approach boundary* (2'2").
5. No un-insulated body parts are permitted past the *restricted approach boundary* (2'2").
6. No un-insulated tools or materials (e.g. replacement parts) that are in contact with an un-insulated part of the electrician's body are permitted within the *restricted approach boundary* (2'2").
7. At no time should an electrician reach blindly into a can or other enclosure that may contain energized equipment.

Insulating Tools and Equipment: Not required if the CCR is in an *electrically safe work condition*

Special Precautionary Techniques:

1. De-energize the CCR before disconnecting the lead
2. Wear Class 1 voltage-rated gloves due to the potentially-energized cables that must be handled in patch panels and behind regulators

Electrical Diagrams: none

Equipment Details: None

Other Reference Documents or Materials: Refer to the cable tags on leads and other information provided in patch panels or other sources of cable path information.

Steps to Take When Switching the Leads on a CCR

1. Plan your work and work your plan. Expect the unexpected.
2. Place **BOTH** CCR's in an *electrically safe work condition*.
3. Don voltage-rated gloves prior to handling any cables.
4. Using an RMS clamp-on ammeter, verify that the circuit is dead before removing/switching leads.
5. Using cable tags, diagrams inside patch panels, and other sources of information, ensure that the leads to be switched are correct.
6. Switch the leads.
7. Re-energize the CCR's.

SECTION XI: PROGRAM ADMINISTRATION

- This program will be reviewed with SRE employees annually. At that time the program will be reviewed and changed to reflect changes in procedures due to safety or updated equipment.
- PPE inspection will be conducted in July annually as part of the overall review of the program. This does not preclude the pre-use inspections that must be conducted prior to using the PPE.
- Policies
 - Standards to use as references
 - Abandoned cables and conduit – marking and other decommissioning procedures
 - Excavation policy
 - Enforcement and discipline- refer to appendix C of this program

SECTION XII: TRAINING

- Safety Training Requirements
 - Must include all hazards encountered, what types of injuries can occur, and how they affect the body
 - May be done via classroom, on-the-job training, or both
- Training protocol for qualified electricians
 - Must include general and task-specific safe work practices
 - Must include training on specific equipment and tasks
 - Must be trained in the hazards and protective equipment related to shock hazards and arc flash and arc blast hazards.
 - Must be trained on how to determine nominal voltage
 - Must be trained on how to test a circuit dead
 - Must be trained how to recognize energized conductors
 - Must be trained how to establish and work within approach boundaries
 - Must include emergency procedures, including how to release someone from a live circuit as well as first aid/CPR
- Lockout Training
 - Required for all personnel who are directly or indirectly exposed to the hazards of an improperly executed circuit lockout
 - *Qualified electricians* must be trained on:
 - The contents of this program (when implemented, upon hire, or when transferred into the group).
 - The specific lockout procedures for each piece of equipment requiring its own lockout procedure (annually)
 - Other persons exposed but not directly affected by a lockout must be trained on this program when the program is implemented, upon hire, or when transferred into the group. **Tower personnel should be trained on the basic components of the program.**
- Contractors must be trained to an equivalent or better level

SECTION XIII: BUDGET

- startup costs
 - insulated tools cost
 - gloves cost
 - other protective equipment costs
- maintenance costs
 - insulated tools cost
 - gloves cost
 - other protective equipment costs

SECTION XIV: AUDITS AND RECORDKEEPING

- **LOTO annual observations** will be conducted in July. Each employee whose duties require that they lock out equipment will be observed and recorded using the form in appendix A of this program. LOTO observation records will be maintained by the ASM in a separate file.
- **Airfield bulb training records** will be maintained in the SRE training file by the ASM.



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

**Subject: AIRPORT SAFETY
SELF-INSPECTION**

Date: 04/23/04

AC No: 150/5200-18C

Initiated by: AAS-300 **Change:**

1. PURPOSE. This Advisory Circular (AC) provides information to airport operators on airport self-inspection programs and identifies items that airport operators should include in such a program.

2. FOCUS. Development of a self-inspection program in accordance with this AC represents an acceptable means of compliance with the 14 Code of Federal Regulations (CFR) Part 139 (Part 139) requirements.

3. CANCELLATION. Advisory Circular 150/5200-18B, Airport Safety Self-Inspection, dated 5/2/88, is cancelled.

4. RELATED READING MATERIAL.

a. 14 CFR Part 139, Certification of Airports. While Part 139 requirements are mandatory for a holder of a Part 139 Airport Operating Certificate, the regulation contains many safety practices that the Federal Aviation Administration recommends for use at all airports.

b. 14 CFR Part 77, Objects Affecting Navigable Airspace.

c. Current editions of the following advisory circulars:

- (1)** AC 150/5200-33, Hazardous Wildlife Attractants on or near Airports
- (2)** AC 150/5210-21, Airport Certification Manual (ACM). This reference is pertinent for certificated airports only.
- (3)** AC 150/5210-20, Ground Vehicle Operations on Airports.
- (4)** AC 150/5200-28, Notices to Airmen (NOTAMs) for Airport Operators.
- (5)** AC 150/5200-30, Airport Winter Safety and Operations.
- (6)** AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport.
- (7)** AC 150/5230-4, Aircraft Fuel Storage, Handling, and Dispensing on Airports.
- (8)** AC 150/5300-13, Airport Design.
- (9)** AC 150/5340-1, Standards for Airport Markings.
- (10)** AC 150/5340-18, Standards for Airport Sign Systems.
- (11)** AC 150/5340-21, Airport Miscellaneous Lighting Visual Aids.
- (12)** AC 150/5340-24, Runway and Taxiway Edge Lighting System.

- (13) AC 150/5340-26, Maintenance of Airport Visual Aid Facilities.
- (14) AC 150/5370-2, Operational Safety on Airports During Construction.
- (15) AC 150/5370-10, Standards for Specifying Construction of Airports.

d. Obtain the latest version of the free Advisory Circular publications from the FAA on its Web site at www.faa.gov/arp/. In addition, these ACs are available by contacting the U.S. Department of Transportation, Subsequent Distribution Office, SVC-121.23, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785. All FAA ACs are listed in the Advisory Circular Checklist, AC 00-2.1, which is available on the internet. The Checklist also explains how to obtain the circulars.

5. BACKGROUND.

a. While some hazardous airport conditions develop virtually instantaneously, others are gradual. It is important that the airport operator have an airport safety self-inspection program that monitors specific airport conditions in order to identify unsatisfactory conditions for prompt corrective actions. A number of airport operators have some form of a safety self-inspection program. The programs vary in scope and effectiveness from verbal instructions and unscheduled and unrecorded inspections to very comprehensive inspection programs with multiple daily schedules and widely distributed responsibilities.

b. At airports certificated under 14 CFR Part 139, the self-inspection program is a key component of an airport operator's airport certification program and required under §139.327. An effective self-inspection program enables an airport operator to operate in compliance to Part 139 standards on a day-to-day basis. In accordance with Part 139, all airports must have an Airport Operating Certificate if serving—

(1) Scheduled or unscheduled passenger operations of an air carrier with aircraft having a seating capacity of more than 30 passengers, or

(2) Scheduled passenger operations with aircraft having a seating capacity of more than 9 and less than 31 passengers.¹

One of the requirements of Part 139 is that the operator of each certificated airport regularly conduct a daily safety self-inspection to ensure that prompt corrective action is taken to eliminate unsafe conditions on the airport. The specific requirements of the self-inspection program at each certificated airport are addressed in the airport certification manual.

c. This AC suggests components, responsibilities, and items for regularly scheduled, continuous surveillance, periodic condition and special inspections, and checklists for use during any of these airport safety self-inspections. This guidance can be modified as necessary to meet local situations. The information and guidance in this publication serve as a basis by which airports operators may develop their own safety self-inspection programs.

6. RESPONSIBILITIES.

a. **Safety Self-Inspection.** Self-inspection is a primary responsibility of the airport owner, operator, or a duly authorized representative. It is customary to assign the job of assuring overall airport ground safety to the airport manager or operations supervisor. Primary attention should be given to such operational items as pavement areas, safety areas, markings, signs, lighting, aircraft rescue and fire fighting, fueling operations, navigational aids, ground vehicles, obstructions, public protection, wildlife

¹ Part 139 is only applicable in the State of Alaska to airport operators serving scheduled or unscheduled passenger operations of an air carrier with aircraft having a seating capacity of more than 30 passengers.

hazard management, construction, and snow and ice control. Inspection of areas that have been assigned to individual air carriers, fixed base operators, or other tenants can be made the responsibility of the user. However, at Part 139 airports, the FAA will hold the certificate holder ultimately responsible for operating the airport safely.

b. Recommended Inspection Frequency.

(1) **Regularly scheduled inspection.** The airport should be inspected at least daily during times when aircraft activity is minimal in order to create the least impact on airport operations. Part of this inspection should be done during the hours of darkness at those airports that serve air carriers after dark.

(2) **Continuous surveillance inspection.** Those activities and facilities that have been identified to require continuous surveillance should be inspected any time personnel are in the air operations area. Hazardous conditions can occur at any time and in a short period of time.

(3) **Periodic condition inspection.** Periodic condition inspection of activities and facilities can be conducted on a regularly scheduled basis but less frequently than daily. The time interval could be weekly, monthly, or quarterly, depending on the activity or facility.

(4) **Special inspection.** Special inspections of activities and facilities should be conducted after receipt of a complaint or when an unusual condition or unusual event occurs on the airport, such as a significant meteorological event or an accident or incident. Special inspections should also be conducted at the end of construction activity to ensure that there are no unsafe conditions present related to the construction activity. A special inspection should be conducted prior to construction personnel leaving the airport in the event that corrective actions are necessary. Special inspections should be documented on the appropriate portions of the regularly scheduled inspection checklist.

c. Inspection Records. An effective safety self-inspection program includes procedures for reporting and correcting deficiencies. This means that the airport operator should have a work order system in place so that deficiencies can be corrected in an expeditious manner.

(1) The operator should issue a Notice to Airmen (NOTAM), as appropriate, through the appropriate Flight Service Station (FSS) reporting deficient conditions that could have an immediate and critical impact on the safety of aircraft operations. When corrective actions have been taken, the NOTAM should be cancelled. At Part 139 airports, other similar systems and procedures may be used if approved by the FAA.

(2) For even the smallest airport, it is desirable to use a safety self-inspection checklist that constitutes a written record of conditions noted, and acts as a check on follow-up actions taken. The scheduled use of a dated checklist will assure the regularity and thoroughness of safety inspections and follow-up. The checklist can be an important administrative tool for airport management. It can provide a snapshot of the condition of the airport, indicating trends, defining problem areas, indicating systems that are beginning to deteriorate and helping to define budgetary requirements. It is most desirable to use a format (see examples, Appendices 1–5) in which each inspected area of the airport complex is positively noted. Retain the checklist until indicated actions are completed. Airports certificated under Part 139 must retain the regularly scheduled inspection checklist for 12 months. Airports may use additional, specialized materials and forms, such as maintenance work orders, NOTAMs, fire station and first aid reports, etc. Some airport operators use computerized versions specifically designed to meet their self-inspection requirements. There are several vendors that have developed these computer programs that can use laptops and Personal Data Assistants (PDAs). However, the regularly scheduled inspection checklist should be the basic log documenting that safety inspection responsibilities are being met.

d. Follow-up. The airport operator should follow up on complaints or requests for corrective action and on all deficient items or problem areas noted during the daily inspection. Determine which problems

require immediate attention and treat those with highest priority, including developing appropriate NOTAM notification.

7. INSPECTION TECHNIQUES.

Inspectors should vary the pattern of the inspection. Fixed inspection patterns, while easy to learn, do not provide for an adequate inspection. The use of such fixed inspection patterns can lead to complacency and to the possibility of missing items that are in need of correction. When conducting an inspection on a runway and when there is time to do only one pass on that runway, inspection personnel, whenever practical, should drive towards the direction of landing aircraft with high intensity flashing beacon and headlights on day and night. This practice will enable self-inspection personnel to see approaching aircraft and improve visibility of the vehicle to pilots. However, it is recommended that a runway inspection be done in both directions. Inspection personnel should also drive the stub taxiways between the runway and parallel taxiway as these areas are commonly overlooked.

8. KNOWLEDGE AND EQUIPMENT FOR SELF-INSPECTION.

a. Airport personnel who conduct safety self-inspections (referred to as inspectors in this AC) should receive training in at least the following areas:

b. Inspectors should know the location and types of airport facilities, airport rules and regulations and, at Part 139 airports, be familiar with the FAA-approved Airport Certification Manual.

- (1)** Airport familiarization, including airport signs, marking, and lighting;
- (2)** Airport Emergency Plan (if the airport has one);
- (3)** Notice to Airmen (NOTAM) notification procedures;
- (4)** Procedures for pedestrians and ground vehicles in movement areas and safety areas;
- (5)** Airport inspection procedures and techniques; and
- (6)** Discrepancy reporting procedures.

c. Inspectors should know the FAA Advisory Circular standards applicable to the airport and have access to copies for reference. Some applicable standards can be found in the FAA Advisory Circulars listed in paragraph 3c. (This is not an all-inclusive list.). They can also be found on the Internet at **www.faa.gov**.

d. Inspectors should have a vehicle equipped with:

(1) a two-way ground control radio capable of communicating with the Airport Traffic Control Tower on controlled airports and on the Common Traffic Advisory Frequency (CTAF) or UNICOM at uncontrolled airports (or at controlled airports when the tower is closed);

(2) a beacon for nighttime (or inclement weather conditions) inspections; and

(3) either a beacon or checkered flag for daytime inspections.

e. Inspectors should know and use correct radio communication phraseology, procedures and techniques, as specified in the Aeronautical Information Manual. If the airport operator uses airport police to do all or part of the self-inspection, the police should use aviation terminology and not 10-4 codes.

f. Inspectors should be supplied with checklists covering the various inspection areas (sample airport safety self-inspection checklists are contained in Appendices 1–5). While format of checklists vary, it is important to develop a checklist that is useful for the airport and its operation. If certain

inspectors will be responsible for only certain items, separate checklists pertinent to those areas may be developed. A sketch of the airport should accompany the checklist so that the location of problems can be marked for easy identification.

g. Inspectors should review the most recently completed checklist from the previous inspection cycle prior to beginning the inspection.

h. If construction is in progress, inspectors should be familiar with the safety plan for the project.

i. If the airport is certificated under Part 139, inspectors should be familiar with the airport certification manual requirements concerning training and self-inspection.

9. COMPONENTS OF A SAFETY SELF-INSPECTION PROGRAM. A successful safety self-inspection program has four components:

a. A regularly scheduled inspection of physical facilities (which must be conducted daily at airports certificated under Part 139 or in accordance with the FAA-approved airport certification manual). If the airport serves air carriers after dark, there should also be a nighttime inspection of lighting;

b. Continuous surveillance inspection of certain airport activities, such as fueling operations, construction, airfield maintenance;

c. A periodic condition inspection program for such things as surveying approach slopes, obstructions, etc.; and

d. Special condition inspections during unusual conditions or situations, such as changing weather or days of unusually high number of aircraft operations.

10. REGULARLY SCHEDULED INSPECTION.

The regularly scheduled inspection consists of specific observations of airport physical facilities on at least a daily basis. This inspection should concentrate on the areas described in this section, which are also included in Appendix 1. If deficiencies exist, the inspector should indicate the deficient item and identify its location on a airport sketch, providing dimensions and depths, as necessary. If appropriate, the inspector should take photographs to document the condition.

a. Pavement Areas. The condition of pavement surfaces is an important part of airport safety. Pavement inspection should be conducted daily before flight operations commence to ensure pavement surfaces are clear. As a minimum, a daily inspection should be performed of all paved areas that are the responsibility of the airport operator or as specified in the FAA-approved Airport Certification Manual. During the pavement inspection, the inspector should:

(1) Check the pavement lips—the area between full-strength pavement and shoulders or paved shoulders and safety areas—to assure that they are no greater than necessary to allow water to drain off the pavement. A lip height no greater than 1 1/2 inches is usually sufficient to allow proper drainage. (At airports certificated under Part 139, pavement lips shall not exceed 3 inches as stated in § 139.305.)

(2) Determine if there are any cracks wide enough to cause directional control problems for an aircraft. Report and monitor these cracks.

(3) Determine if there are any holes that could cause directional control problems for an aircraft. (At airports subject to Part 139, any hole that cannot be covered by a 5-inch circle, and the side slope at any point in the hole that exceeds 3 inches in depth and is 45 degrees or greater, is a discrepancy. If the hole cannot be covered by a 5-inch circle but the side slope at any point in the hole that exceeds 3

inches in depth or is less than 45 degrees, it may be a discrepancy if it is determined to be a surface variation that could impair directional control of an air carrier aircraft.)

(4) Check the condition of pavement areas for cracks, scaling, spalling, bumps, low spots, and for debris that could cause foreign object damage to aircraft.

(5) Check for vegetation growth along runway and taxiway edges that may impede drainage from the pavement surface.

(6) Check for vegetation growth in cracks.

(7) Report and monitor any cracks, holes, variations and vegetation that can cause loss of aircraft directional control or may cause pavement damage, including damaged caused by damming or ponding water.

b. Safety Areas. The inspector should know the dimensions of the runway and taxiway safety areas at the airport. At airports certificated under Part 139, the dimensions of the safety areas should be documented in the airport certification manual. During the safety area inspection, the inspector should:

(1) Determine if there are any hazardous ruts, depressions, humps or variations from the normal smooth surface.

(2) Check to ensure no object is located in a safety area, except objects that must be in the safety areas because of their functions (such as runway lights, signs, or navigational aids). These objects must be constructed on frangibly mounted structures of the lowest practical height. At Part 139 airports, the frangible point must be no higher than 3 inches above grade.

(3) Determine if the base for any equipment in safety areas is at grade level (especially during the winter thaw) and equipment and NAVAIDs mounted on frangible couplings.

(4) Check to ensure that manhole and handhole covers are at grade level and can support vehicles and aircraft. Check to ensure that mounts for light fixtures are at grade level.

(5) Check for surface variation and other damage caused by rodents or other animals.

(6) Report any objects that are not frangible or not at grade level. Also report extraneous equipment and objects, such construction equipment, and surface variations that would cause damage to an aircraft or impede emergency response vehicles. At airports certificated under Part 139, issue a NOTAM regarding objects in the safety area contrary to § 139.309 (see § 139.339)

c. Markings. Airport markings provide important information to pilots during takeoff, landing, and taxiing. To avoid confusion and disorientation, airport markings should be in compliance with FAA marking standards specified in AC 150/5340-1, Standards for Airport Markings. (Compliance with these standards is mandatory for operators of airports certificated under Part 139 and for airport operators that have accepted Federal funds for runway and taxiway construction/rehabilitation.) The inspector should know the appropriate markings required at the airport. During the marking inspection, the inspector should:

(1) Check markings for correct color-coding, peeling, blistering, chipping, fading, and obscurity due to rubber buildup.

(2) Check to see if all runway hold position markings are clearly visible.

(3) During and after construction projects, check new markings for compliance with FAA marking standards.

(4) If the markings have glass beads, check markings during periods of darkness to determine if the reflectivity of glass beads is adequate at night.

(5) Report and monitor any nonstandard marking or markings that are obscured, faded or deteriorating.

d. Signs. Signs provide important information to pilots while taxiing. To avoid pilot confusion and disorientation, airport signs should be in accordance with FAA sign standards specified in AC 150/5340-18, Standards for Airport Sign Systems. (Compliance with these standards is mandatory for operators of airports certificated under Part 139 and for airport operators that have accepted Federal funds for runway and taxiway construction/rehabilitation.) The inspector should know the appropriate sign standards and specifications at the airport and at a Part 139 certificated airport, ensure signs comply with the FAA-approved Sign Plan.

(1) Check signs to ensure they are easy to read, in accordance with color standards, retro-reflective, and that all lighted signs are working and not obscured by vegetation, dirt, snow, etc.

(2) Check signs to ensure they are frangibly mounted and concrete bases are properly maintained at grade level.

(3) Check to see that sign panels are not missing or damaged, that they have the correct legend and arrow orientation, and that they are not cracked or broken.

(4) During and after construction projects, check new signs for compliance to FAA sign standards and, at Part 139 airports, in accordance with the FAA-approved Sign Plan.

(5) During periods of darkness, check signs to ensure they are properly illuminated. Ensure mandatory instruction signs are illuminated with the associated runway lighting system. Check signs for correct operations; that they are on the correct circuits, they do not flicker and that they follow the intensity setting of the runway or taxiway lights.

(6) Report and monitor any nonstandard sign or any sign that is not functioning, is faded or damaged. At airports certificated under Part 139, issue a NOTAM regarding any malfunctioning holding position sign or ILS critical are sign, as specified under § 139.339

e. Lighting. At night and during periods of low visibility, lighting is important for safe airport operations. Lights come in different shapes, sizes, colors, and configurations and can be located either in the pavement or along its edges. Inspection of lighting is best accomplished during periods of darkness in order to evaluate lighting systems when they provide the primary visual aid for pilots. The inspection should concentrate on the lighting owned by the airport operator. However, the inspector should observe any lighting owned or operated by others and report any observed problems immediately to the appropriate responsible owner. During the lighting inspection, the inspector should:

(1) Check to ensure that the following are operable, if installed, and that vegetation or deposits of foreign material do not obscure the light fixture.

(i) Runway and taxiway edge lights;

(ii) Apron edge lights;

(iii) Runway centerline and touchdown zone lights;

(iv) Taxiway centerline lights or centerline reflectors;

(v) Runway threshold/end lights; and

(vi) Runway guard lights (both elevated and in-pavement, if installed).

(2) Check that the following are operable, if installed:

(i) Ramp lights and floodlights used in construction to ensure they are properly shielded);

- (ii) Obstruction lights; and
- (iii) Lighting in fuel storage areas.
- (3) Report all fixtures missing and lights that are not working or appear dim.
- (4) Report any missing or broken light fixture lenses.
- (5) Ensure that runway and taxiway lights and runway threshold lights are the proper color and are oriented correctly.
- (6) Check that lights function properly through the manual or radio control features, and that photocell controls function properly.
- (7) Check the lights for proper alignment, aiming and correct changes in intensity, for correct height, erosion around the bases and the height of frangibility.

f. Navigational Aids (NAVAIDs). The inspection of NAVAIDs should concentrate on the visual navigational aids owned by the airport operator. However, the inspector should observe any navigational aids owned or operated by others, such as the FAA, and report any observed problems immediately to the NAVAID owner. During the inspection of NAVAIDs, the inspector should:

- (1) Determine if the segmented circle is clear of vegetation and that it can be seen easily from the air.
- (2) Determine if the airport rotating beacon is visible and working properly.
- (3) Check the wind cone(s) to ensure that it swings freely, the cone fabric is not faded or frayed, and, if lighted, that all lights are operating.
- (4) Determine if the Runway End Lights (RENs, formerly known as Runway End Identifier Lights) are flashing in proper sequence and mounted on frangible couplings.
- (5) Check Visual Glide Slope Indicators (VASIs, PLASIs, or PAPIs) to ensure that their lights are working and mounted on frangible couplings.
- (6) Determine if the Approach Lighting systems are functioning properly.
- (7) Report and monitor any NAVAID that is malfunctioning, inoperable or misaligned, damaged or missing.

g. Obstructions. The inspection of obstructions should concentrate on a visual check of construction underway on or near the airport that could affect aircraft operations. This also includes checking for any vegetation, especially, trees, that may penetrate the Part 77 surfaces. During the inspection of obstructions, the inspector should:

- (1) Check to ensure that construction equipment, especially tall cranes being used at construction sites, are not an obstruction. If construction is found and thought to create an obstruction, the airport operator should determine if proper notification to FAA, such as is required through Part 77 or Airport Layout Plan review, has been provided.
- (2) Determine if obstructions are properly marked and lighted.
- (3) Direct any person proposing construction near a public-use airport meeting the notice requirements contained in Part 77, Objects Affecting Navigable Airspace, to the Air Traffic Division or Airports District Office immediately if their construction has not been reported to the FAA.
- (4) Report and monitor any obstruction light that is missing, inoperative or damaged, and any object that appears to be an obstruction and is not properly marked or lit.

h. Fueling Operations. The daily inspection on aircraft fueling operations should concentrate on a quick inspection for the most common problems concerning compliance with local fire safety codes at fuel storage areas and with mobile fuelers. The inspection should also include security, fire protection, general housekeeping, and fuel dispensing facilities and procedures. A more detailed fueling operation inspection should be scheduled quarterly (see Quarterly Fueling Operations under Periodic Condition Inspection). During the daily inspection of aircraft fueling operations, the inspector should:

- (1) Determine if the fueling operator is permitting any unsafe fueling practices or is in violation of local fire code, such as failure to bond aircraft with the mobile fuelers during fueling operations or fueling personnel smoking while fueling aircraft.
- (2) Check to ensure that the appropriate signs for the fuel farm are installed and that all gates are locked except when the facility is occupied by an authorized user.
- (3) Report and monitor any unsafe fueling practices and violation of local fire codes. At Part 139 airports, report any noncompliance with fuel fire safety procedures specified in the FAA-approved Airport Certification Manual.

i. Snow and Ice. The inspector should be familiar with the airport's snow and ice removal procedures and guidance provided in AC 150/5200-30, Airport Winter Safety and Operations. At Part 139 certificated airports, the inspector should be familiar with the airport's FAA-approved Snow and Ice Control Plan. During the snow and ice control inspection, the inspector should:

- (1) Determine if any lights and signs are obscured by snow or damaged by snow removal operations.
- (2) Check to ensure that snow banks and drifts next to the runway and taxiways provide clearance for aircraft wing tips, engines, and propellers.
- (3) Check to ensure that snow is not piled across the runway threshold or across runway/runway intersections.
- (4) Check to be sure that no foreign objects are left on the pavement from snow removal operations.
- (5) Check to ensure that snow removal operations have not blocked any taxiways or access routes dedicated for aircraft rescue and fire fighting equipment.
- (6) Check to ensure that snow is not accumulated or piled in the critical areas for electronic NAVAIDs.
- (7) Check for and report slippery pavement conditions in terms of either braking action or MU values. If a friction measurement device is available, issue the appropriate numbers obtained from the equipment. (Do not attempt to correlate friction measurement numbers with braking action reports.)
- (8) Report and monitor any snow and ice accumulation that has been missed by the snow and ice removal operation, and any dangerous condition created by such operations, such as obscured signs or lights. At airports certificated under Part 139, issue a NOTAM regarding snow, ice, slush or water on the movement area or loading ramps, and parking areas, as specified under § 139.339.

j. Construction. The inspector should be familiar with the airport's construction safety procedures and guidance provided in AC 150/5370-2, Operational Safety on Airports During Construction. At Part 139 certificated airports, the inspector should be familiar with the airport's FAA-approved Construction Safety Plan. During the construction inspection, the inspector should:

- (1) Determine if stockpiled material and construction materials are properly stored to keep them from being moved by wind, jet blast, or prop wash, and is not left in safety areas or movement area.

(2) Check all construction adjacent to movement areas to ensure areas are identified with conspicuous marking and lighting.

(3) Determine if construction equipment (such as bulldozers, cranes, etc.) are marked and lighted and parked clear of the safety areas.

(4) Ensure construction barricades are properly positioned to define the limits of construction and hazardous areas and, if barricades are lighted, check to ensure lights are working properly and are positioned correctly.

(5) Check to ensure that debris and foreign objects are continuously being picked up around construction areas.

(6) Check for open trenches in the safety areas or adjacent to movement areas.

(7) Check operation of lighting in areas adjacent to construction daily before the construction crews depart for the day. In particular, ensure that mandatory instruction signs remain lit with the associated runway lights, even on taxiways that have been closed for construction.

(8) Check NOTAMs daily during construction projects to ensure they accurately reflect the conditions on the airport.

(9) Verify that closed taxiways or runways are properly marked and lighted.

(10) Report and monitor any dangerous condition created by construction activity, including damage to signs, lights, markings and NAVAIDS or equipment and supplies left in movement areas and safety areas.

k. Aircraft Rescue and Fire Fighting. During the inspection of aircraft rescue and fire fighting (ARFF) capabilities, the inspector should:

(1) Check the status of ARFF response, including the availability of equipment, fire fighters and extinguishing agent. At Part 139 airports, ensure that such ARFF capabilities comply with the FAA-approved Airport Certification Manual and that the airport's ARFF Index is still appropriate for air carrier aircraft served.

(2) Ensure alarm and emergency notification communication systems are operable.

(3) Determine the adequacy of available fire extinguishing agents.

(4) Check for construction or maintenance activity on the movement area that could affect ARFF response routes. Ensure that the ARFF Department has been notified if construction or maintenance activity could affect emergency response routes.

(5) Report and monitor any ARFF vehicle, equipment or extinguishing agent that is not available or inoperative; any ARFF personnel that are not available; and any changes to aircraft that may require a change to ARFF capabilities. At Part 139 airports, notify the FAA if ARFF vehicles is inoperative and cannot be replaced immediately, as specified under § 139.319(g) and issue a NOTAM regarding non-availability of any rescue and firefighting capability, as specified under § 139.339.

l. Public Protection. During the public protection inspection, check gates, fencing, locks, and other safeguards are in place and functioning properly to prevent inadvertent entry to movement areas by unauthorized persons and vehicles and offer protection from jet blast. Report and monitor any safeguards that are damaged or missing. In accordance with the airport's security plan, report unauthorized persons or vehicles in the movement area (airports regulated by the Transportation Security Administration may have additional requirements for reporting and responding to unauthorized persons and vehicles).

m. Wildlife Hazard Management. During the wildlife hazard inspection, the inspector should check for evidence of birds or animals on the runways, taxiways, aprons, and ramps or other signs that

wildlife problems may have developed - such as large flocks of birds on or adjacent to the airport. Wildlife hazards found during the daily self-inspection should be properly documented. All dead wildlife found and all wildlife aircraft strikes should be reported to the FAA on the FAA Form 5200-7, Bird/Other Wildlife Strike Report. This form may be obtained from the FAA Internet site, at www.faa.gov. Additionally, the inspector should check fencing and gates for wildlife accessibility and should ensure that wildlife control equipment is available and operational.

11. CONTINUOUS SURVEILLANCE INSPECTION. Continuous surveillance inspection consists of general observation of activities for compliance with regulations, procedures, etc., as well as abnormalities with physical facilities that are readily apparent. This is performed any time inspection personnel are on the air operations area. Continuous surveillance of airport physical facilities and activities should cover at least the areas described in this section, which are also included in Appendix 2.

a. Ground Vehicles. During the continuous surveillance inspection of ground vehicles, the inspector should:

(1) Determine if vehicle drivers are following the airport's procedures and arrangements for the orderly operations of ground vehicles (including mowing machines or other maintenance vehicles in the safety areas). Extra attention should be paid to ground vehicle activity during construction, winter operations, and other special events.

(2) Report and monitor any vehicle operator that is not complying with the airport's vehicle procedures and arrangements.

(3) Report any ground vehicle accident observed and any ground vehicle signs and markings that are damaged, missing or obscured.

b. Fueling Operations. The inspector should:

(1) Emphasize fire and explosion hazards inherent in aircraft refueling.

(2) Ensure proper bonding is being used, deadman controls are not blocked, and no smoking prohibitions are being observed, and aircraft are not being fueled inside hangars.

(3) Check for proper parking of mobile fuelers to ensure these vehicles are at least 10' apart and 50' from buildings.

(4) Check for fuel leaks or spills in the fuel storage area and around mobile fuelers.

(5) Determine if the fuel farm is free of flammable materials, including litter and vegetation.

(6) Report and monitor any of unsafe fueling conditions discussed above and other obvious violations of local fire code and airport fuel fire safety procedures.

c. Snow and Ice. During the continuous surveillance inspection of snow and ice removal operations, the inspector should check snow or ice covered pavements and report and monitor any surfaces where snow and ice may affect the safety of aircraft operations. In addition, the inspector should monitor snow and ice removal NOTAMS to ensure they remain current and issue timely corrections, as necessary. If the airport uses other means to notify tenants of snow and ice removal operations, e.g., faxed or electronic messages, the inspector should also monitor this information for accuracy. Check to ensure that snow or ice on pavement surfaces does not affect the safety of aircraft operations and that NOTAMS are current.

d. Construction. The Inspector should check construction projects to ensure that the contractor is following the construction safety plan. During the continuous surveillance inspection of construction activity, the inspector should check for, and report, any of the following conditions:

- (1) Unauthorized use of runways, taxiways, and aprons by construction personnel and equipment.
- (2) Conditions that may result in runway incursions and other irregularities. This includes ensuring that construction areas are delineated appropriately with barricades, cones, markings, etc.
- (3) Construction equipment is not operated in ILS/MLS critical areas unless coordination with FAA has been accomplished.
- (4) Perimeter gates are left open and unattended, unlocked or construction vehicles and personnel are not following access and escort procedures.
- (5) Construction vehicles not properly marked or missing appropriate flags and/or beacons.
- (6) Foreign object debris on haul roads adjacent to movement areas that can be tracked onto taxiways, aprons, and ramp areas.
- (7) Confusing or missing signs, markings or lighting that could potentially confuse or mislead pilots.
- (8) Barricades and lighting are in place and operational.

e. Public Protection. Pay special attention to public protection during construction and special events. During the continuous surveillance inspection of safeguards used to protect the public, the inspector should check for, and report, any of the following conditions:

- (1) Unauthorized personnel, vehicles, and animals, particularly in areas aircraft passengers and the general public are present on the air carrier ramp and other portions of the movement area, i.e, remote aircraft parking locations.
- (2) Inoperable or blocked gates, particularly those that would impede access by aircraft rescue and fire fighting equipment.
- (3) Open or unlocked gates and missing or damaged signs posted to prevent unauthorized access to the airfield.
- (4) Damaged or missing jet blast fences.

f. Wildlife Hazard Management. During the continuous surveillance inspection of wildlife hazards, the inspector should check for, and report, any of the following conditions:

- (1) Birds or animals, such as dogs, deer, etc., on or adjacent to the runways, taxiways, aprons, and ramps to determine if there is a potential wildlife hazard problem.
- (2) Potential hazard created by birds on or adjacent to the airport.
- (3) Wildlife strikes and carcasses found on the runways. Report these on FAA Form 5200-7, Bird/Other Wildlife Strike Report. This form may be obtained from the FAA Internet site at www.faa.gov.

g. Foreign Object Debris (FOD). The inspector should continuously check for, and remove any FOD in movement areas, aircraft parking areas and loading ramps.

12. PERIODIC CONDITION INSPECTION. Periodic condition inspections consist of specific checks of physical facilities on a regularly scheduled basis (but less frequently than daily). Checks may require use of equipment (e.g., Walker Bar to measure VASI glide slope angles or transit to survey approach slopes, or continuous friction measurement equipment) or checking specific features of physical facilities. Periodic inspection of airport physical facilities and activities should cover at least the areas described in this section, which are also included in Appendix 3.

a. Pavement Areas. The inspector should check pavement surfaces for rubber buildup, polishing, or other items affecting friction.

b. Markings. The inspector should:

(1) Check pavement markings to ensure they are correct and clearly visible. Markings on concrete and faded asphalt should be outlined with a black border.

(2) Determine if markings are visible at night, especially examine for rubber buildup in the touchdown zone areas.

c. Signs. The inspector should check signs faces for peeling and for fading or faded colors.

d. Quarterly Fueling Inspections. Airports certificated under Part 139 are required to establish fire safety standards for safe fueling operations and conduct quarterly inspections of the fueling facilities. The inspection procedures in this section are based on the NFPA 407 fire code for airport fueling operations, which is one of the more common fire codes in effect at certificated airports. The fire safety standards for fueling operations should be listed in the Airport Certification Manual (ACM) and the quarterly inspections should be conducted for compliance to the fueling fire safety standards listed in the ACM. Sample quarterly inspection checklists for fuel storage areas and mobile fuelers are included in Appendix 5. Typical fire safety standards to inspect quarterly are listed below. Airports certificated under Part 139 are required to maintain a record of this inspection for at least 12 months.

(1) **Fuel storage areas and loading/unloading stations.** The inspector should:

(i) Check fuel storage areas for adequate fencing and security to prevent unauthorized access or tampering.

(ii) Check for “No Smoking” signs that are clearly visible.

(iii) Check fuel storage areas for materials such as trash or vegetation that could contribute to the spread of fire. Also check for equipment, functions or activities that could be ignition sources.

(iv) Note if fueling equipment appears to be in good operating condition and free of fuel leaks.

(v) Check piping for reasonable protection from damage by vehicles if piping is above ground.

(vi) Check fuel storage areas for at least two accessible and serviceable fire extinguishers. Where the open hose discharge capacity of the equipment is more than 200 gallons per minute, at least one wheeled extinguisher with at least 125 lbs of agent is also required.

(vii) Check for explosion proof equipment, switches and wiring that is reasonably protected from heat, abrasion or impact, which could cause an ignition source.

(viii) Check for piping, filters, tanks and pumps being electrically bonded together and interconnected to an adequate grounding rod.

(ix) Check for a serviceable bond/ground wire with clip at each loading/unloading facility for grounding tankers and mobile fuelers.

(x) Check loading stations for deadman control features.

(xi) Look for a boldly marked emergency cutoff capable of stopping all fuel flow with one physical movement. The emergency cutoff should be located outside the probable fuel spill area near the route that normally is used to leave the spill area or to reach the fire extinguishers.

(2) **Mobile fuelers.** At least once every 3 months, inspect all fuel trucks to ensure they meet fire safety standards. The inspector should:

(i) Note if mobile fuelers appear to be in good operating condition and free of fuel leaks.

(ii) Check mobile fuelers for parking at least 50 feet from a building and at least 10 feet from each other. Note: Some airports have a mobile fueller maintenance building that is approved by the local fire marshal.

(iii) Check for flammability decals on all sides. Lettering should be at least 3 inches high. Also check for hazardous materials placards on all sides. The Hazmat number for Jet A trucks should be #1863 and #1203 for 100LL trucks.

(iv) Check the cab for a "No Smoking" sign and the presence of smoking equipment. Ashtrays and cigarette lighters are not to be provided.

(v) Check for two fire extinguishers, accessible from each side of the mobile fueller. Fire extinguishers should be charged, sealed and tagged from the last fire extinguisher inspection. Check dry chemical extinguishers to ensure they are only B-C rated. ABC rated multi-purpose dry chemical extinguishers are not to be used on mobile fuelers as they are highly corrosive to aircraft and can cause significant damage to aircraft engines.

(vi) Check emergency fuel cutoffs to ensure they are boldly marked and operable. There should be an emergency fuel cutoff accessible from each side.

(vii) Check electrical equipment, switches, wiring and tail light lens covers for explosion proof construction and reasonable protection from heat, abrasion or impact which could be an ignition source.

(viii) Check for serviceable bonding wires and clamps.

(ix) Check nozzles for deadman control feature.

(x) Check the vehicle exhaust system for exhaust leaks and for adequate shielding if it extends under the fuel tank portion of the vehicle.

e. **Navigational Aids.** Periodically check the aiming of REILs and Visual Glide Slope Indicators owned by the airport.

f. **Lighting.** The inspector should:

(1) Determine that power generator and circuit resistance tests are being conducted.

(2) Ensure lights with adjustable optical systems are checked for proper aiming.

g. **Obstructions.** The inspector should:

(1) Check to ensure there are no overhead power lines in the aircraft parking areas.

(2) Annually survey trees and other structures near the airport that could affect glide path angles, approach light lanes, or be an obstruction to Part 77 surfaces.

h. **Aircraft Rescue and Fire Fighting.** The inspector should:

(1) Periodically determine if the aircraft rescue and fire fighting equipment is capable of meeting response times, if it is required under Part 139.

- (2) Ensure that recurrent training and hot-fire drills are being conducted as required by Part 139.
- (3) Check to ensure the availability of adequate entry tools.

13. SPECIAL CONDITION INSPECTIONS. Special condition inspections occur after receipt of a complaint or as triggered by an unusual condition or event. A special inspection should be conducted after an accident or incident. Depending upon circumstances, special condition inspections may include the inspection of any of the specific facilities or activities under the other three components. A special condition inspection of airport physical facilities and activities should cover at least the areas described in this section, which are also included in Appendix 4.

a. Pavement Areas. After a rain or thunderstorm, the inspector should check the pavement areas for ponding and edge damming.

b. Markings and Signs. The inspector should:

- (1) Determine if markings are visible at night especially when the pavement is wet following a rain.
- (2) After construction or maintenance operations, ensure that pavement markings are correct.

c. Safety Areas. The inspector should:

- (1) Ensure that the storm sewer system is checked to verify that inlets are not clogged and drainage channels are free of debris. Note any standing water.
- (2) Ensure all inlet covers are in place and sewer covers are at grade level.
- (3) Conduct a special inspection before reopening a runway or taxiway following any construction or maintenance that has been performed in or around that safety area.
- (4) Any time an aircraft has left the pavement and entered a safety area, check to ensure that no ruts or holes have been made by the aircraft tires or by personnel and equipment during the recovery operation.
- (5) Check for construction and maintenance activities to ensure that no hazardous conditions have been created (equipment left in safety areas, unacceptable pavement lips created by ground alteration work, ruts from mowing equipment, etc.).
- (6) Inspect engineered materials arresting system (EMAS), if installed, for damage and for deterioration.
- (7) Physically drive or walk the safety areas to check for any discrepancies.

d. Snow and Ice. Several special inspections may be needed during a winter storm until the airport is back to a normal operation. The inspector should:

- (1) Check to ensure that all foreign objects have been picked up after snow and ice removal operations.
- (2) If a friction measurement device is available, issue the appropriate numbers obtained from the equipment. Do not attempt to correlate friction measurement numbers with braking action reports. If a friction measurement device is not available, issue to Air Traffic braking action reports.
- (3) Conduct a special sign inspection after snowstorms for signs that may have been damaged by plows or by snow thrown by blowers.

e. Construction. The inspector should:

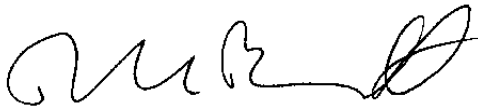
- (1) Ensure that construction areas are barricaded and lighted properly.

- (2) Check construction equipment to ensure that they are parked within the pre-arranged areas.
- (3) Conduct night inspections to ensure that barricades, warning lighting, and reflectors are adequate to keep aircraft away from the construction area.
- (4) Check the location of construction material and stockpiles to ensure that they are outside of safety areas and do not block any signs.
- (5) Check any movement areas adjacent to construction areas or movement areas traversed by construction vehicles to ensure there is no FOD present.
- (6) Check movement areas around construction sites for potentially confusing marking, lighting, and signs that could cause pilot confusion or result in a runway incursion.

f. Surface Movement Guidance and Control Systems (SMGCS).

- (1) For operations below 1,200 feet runway visual range, the inspector should conduct an initial inspection of stop bar lights, runway guard lights, clearance bar lights, taxiway centerline lights, and taxiway edge lights installed on the low visibility routes in accordance with the airport's SMGCS plan.
- (2) SMGCS lighting systems that are not electronically monitored should be periodically inspected every 2 to 4 hours for during operations below 1,200 feet to 600 feet. For operations below 600 feet, these inspections should take place every 2 hours. Such inspections should be detailed in the airport's SMGCS plan.

14. CONDITION REPORTING. Alert users of the airport to any unsafe conditions that exists and that could affect their operations. Ensure appropriate NOTAMS are issued for unsafe conditions that are identified during an inspection but cannot be corrected immediately. After reporting NOTAMS to the Flight Service Station, follow-up to ensure that the NOTAMS were processed and transmitted.



David L. Bennett
Director, Office of Airport Safety and Standards

APPENDICES 1–4**SUGGESTED AIRPORT SAFETY SELF-INSPECTION CHECKLISTS**

An airport safety self-inspection checklist should cover the condition of the facilities and equipment on the airport for it to be a part of a good safety inspection program. The checklist should be developed so that it is useful for the airport and its operation. A sketch of the airport is highly recommended to readily identify the location of problems found during the daily inspection.

The suggested checklists consist of a listing of facilities and equipment and a series of conditions that are inspected.

The blank squares indicate the conditions to be evaluated for each facility. A check (✓) in one of these squares would indicate that the condition of the facility and equipment was found to be satisfactory. On the other hand, an “x” in one of these squares would indicate that the condition of the facility and equipment was found to be unsatisfactory.

When an unsatisfactory condition is found:

1. An “x” for each applicable square should be entered;
2. A note provided in the Remark/Action Taken section;
3. The location of the condition should be identified in the airport sketch; and
4. Appropriate follow-up action including NOTAMs should be initiated. Corrective action should be documented on either the self-inspection checklists or on a separate work order system.

These checklists are ideal for electronic conversion to PDAs and laptop computers.

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APPENDIX 1

AIRPORT SAFETY SELF-INSPECTION CHECKLIST

DATE: _____ DAY: _____

✓ Satisfactory

X Unsatisfactory

Day Inspector/Time: _____ Night Inspector/Time: _____

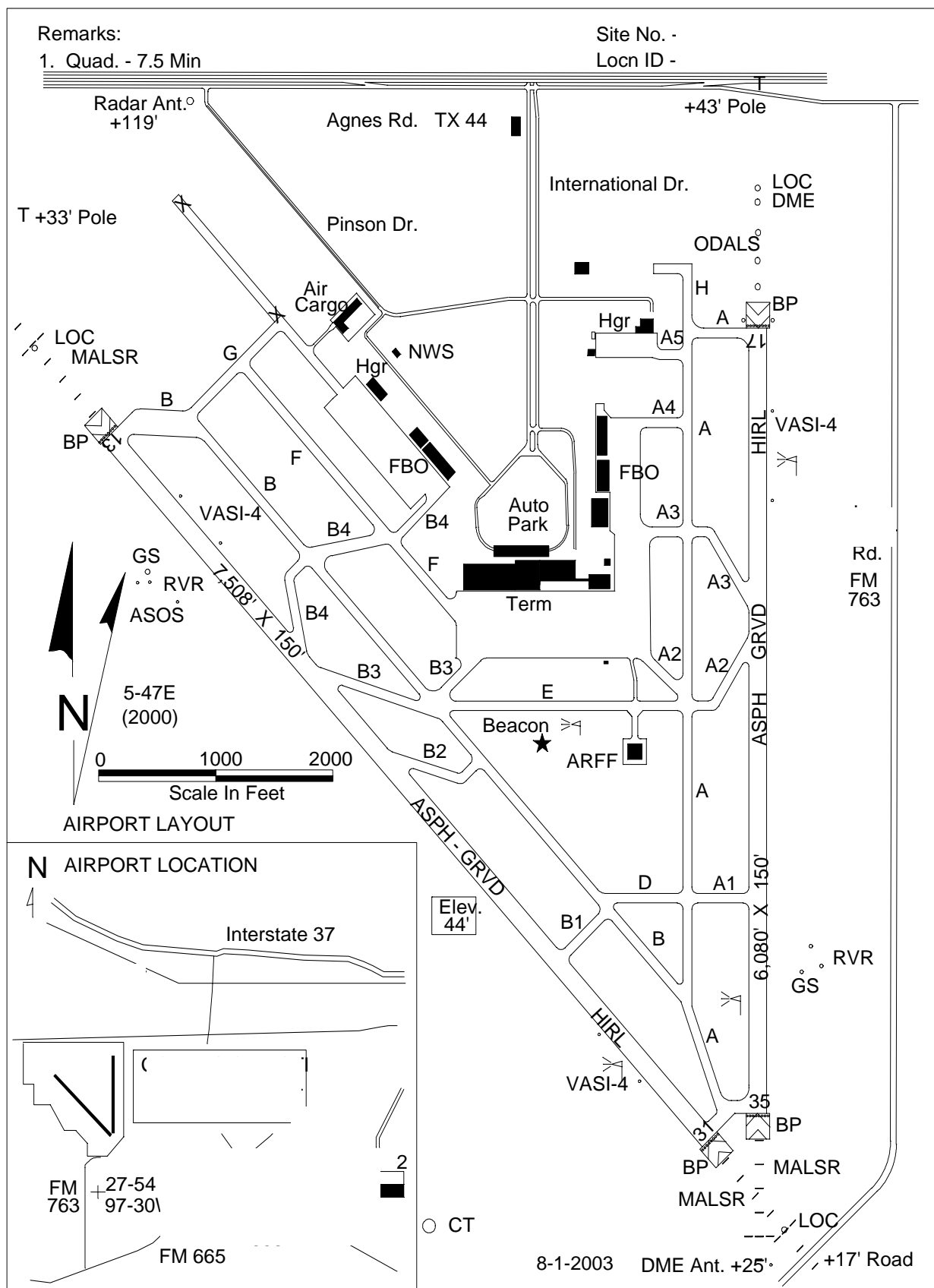
FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Pavement Areas	Pavement lips over 3"				
	Hole – 5" diam. 3" deep				
	Cracks/spalling/heaves				
	FOD: gravel/debris/sand				
	Rubber deposits				
	Ponding/edge dams				
Safety Areas	Ruts/humps/erosion				
	Drainage/construction				
	Support equipment/aircraft				
	Frangible bases				
	Unauthorized objects				
Markings	Clearly visible/standard				
	Runway markings				
	Taxiway markings				
	Holding position markings				
	Glass beads				
Signs	Standard/meet Sign Plan				
	Obscured/operable				
	Damaged/retroreflective				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Lighting	Obscured/dirty/operable				
	Damaged/missing				
	Faulty aim/adjustment				
	Runway lighting				
	Taxiway lighting				
	Pilot control lighting				
Navigational Aids	Rotating beacon operable				
	Wind indicators				
	RENs/VGSI systems				
Obstructions	Obstruction lights operable				
	Cranes/trees				
Fueling Operations	Fencing/gates/signs				
	Fuel marking/labeling				
	Fire extinguishers				
	Frayed wires				
	Fuel leaks/vegetation				
Snow & Ice	Surface conditions				
	Snowbank clearances				
	Lights & signs obscured				
	NAVAIDs				
	Fire access				

FACILITIES	CONDITIONS	D	N	REMARKS	RESOLVED BY (Date/Initials)
Construction	Barricades/lights				
	Equipment parking				
	Material stockpiles				
	Confusing signs/markings				
Aircraft Rescue and Fire Fighting	Equipment/crew availability				
	Communications/alarms				
	Response routes affected				
Public Protection	Fencing/gates/signs				
	Jet blast problems				
Wildlife Hazards	Wildlife present/location				
	Complying with WHMP				
	Dead birds				

Comments/Remarks: _____

Airfield Map on Reverse Side

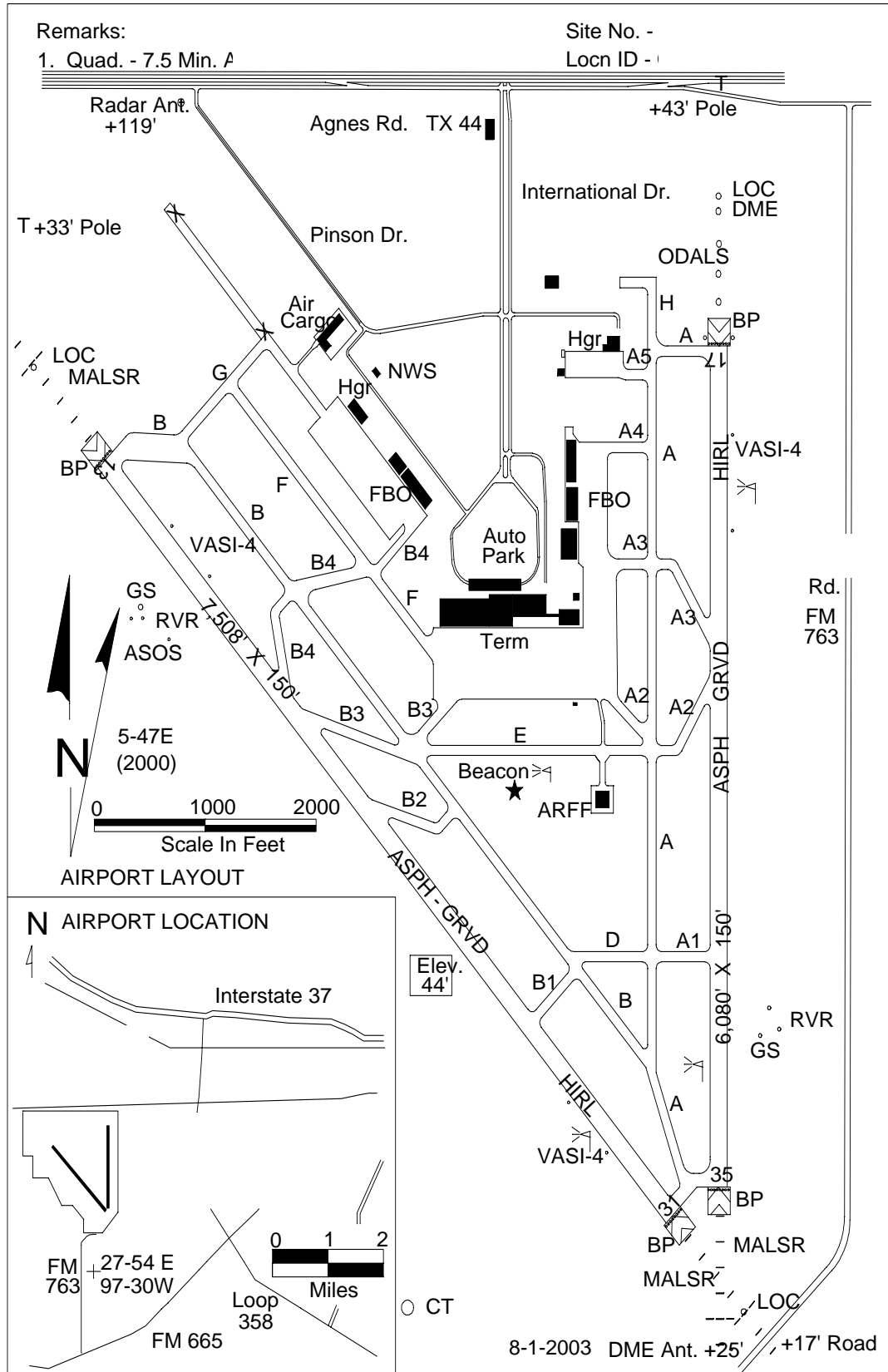


APPENDIX 2

CONTINUOUS SURVEILLANCE CHECKLIST

<div style="text-align: right;"> <input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory </div>			
DATE: _____		DAY: _____	
TIME: _____		INSPECTOR: _____	
FACILITIES	CONDITIONS	✓	REMARKS/ACTIONS TAKEN
Ground Vehicles	Rules/Procedures Followed		
Fueling Operations	Fire/Explosion Hazards		
	Signing/No smoking		
Snow & Ice	Surface Conditions		
Construction	Safety Plan		
	Runway Incursions		
	Runway & Taxiway Use		
	FOD		
Public Protection	Unauthorized Persons		
	Unauthorized Vehicles		
	Gates clear		
Wildlife Hazards	Birds/Animals		
Miscellaneous	Pedestrians in Movement Areas		
	Passenger Load/Unload		
	Debris in Movement Area		
Additional Remarks			

Airfield Map on Reverse Side



APPENDIX 3

PERIODIC CONDITION INSPECTION CHECKLIST

DATE: _____ DAY: _____		✓ Satisfactory
TIME: _____ INSPECTOR: _____		X Unsatisfactory
FACILITIES	CONDITIONS	REMARKS/ACTIONS TAKEN
Pavement Areas	Rubber Deposits	
	Polishing	
Markings and Signs	Visible	
	Standards	
Fueling Operations	Physical Facilities	
	Mobile Fuelers	
	Fire Extinguishers	
	Fuel Marking/Labeling	
	Frayed Wiring	
Navigational Aids	RENs/VGSI Aiming	
Lighting	Power Generator Check	
	Circuit Resistance Test	
	Aim/Adjustment	
Obstructions	Surveyed Trees/Structures	
	Overhead Power Lines	
Aircraft Rescue and Fire Fighting	Response Times	
	Live Fire Drills	
	Training	
Additional Remarks		

Airfield Map on Reverse Side

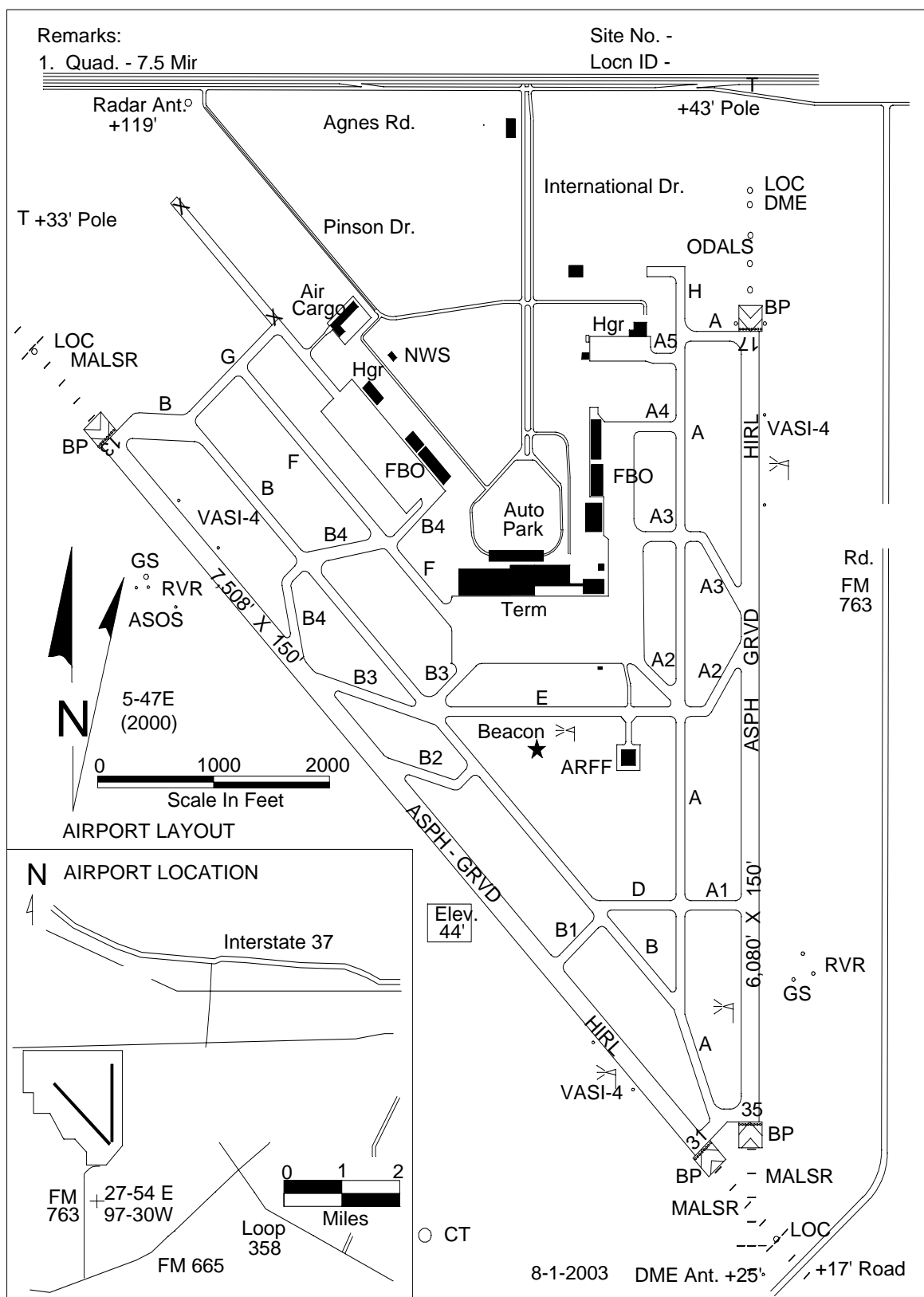


APPENDIX 4

SPECIAL INSPECTION CHECKLIST

DATE: _____ DAY: _____		√ Satisfactory
TIME: _____ INSPECTOR: _____		X Unsatisfactory
FACILITIES	CONDITIONS	√
Pavement Areas	Ponding/Edge Dams	
Markings And Signs	Visible after rain	
	Standards after Construction	
Safety Areas	Drainage	
	Reopening Runways	
	Reopening Taxiways	
Snow and Ice	Surface conditions	
	Snowbank clearance	
	Lights & Signs Obscured	
	FOD	
	Braking Action/MU Reports	
Construction	Barricades	
	Construction Lights	
	Equipment Parking	
SMGCS	SMGCS Lighting	
Additional Remarks		

Airfield Map on Reverse Side



APPENDIX 5A

QUARTERLY INSPECTION – MOBILE FUELERS

Inspector: _____ **Fueling Agent:** _____ **Date:** _____

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APPENDIX 5B

QUARTERLY INSPECTION – FUEL STORAGE AREAS

Inspector: _____ Fueling Agent: _____ Date: _____

S – Satisfactory U – Unsatisfactory R – Remark Below	Jet A Section			100LL Section			Other _____		
	S	U	R	S	U	R	S	U	R
Fencing/Locks/Signs									
Piping protected from vehicles									
No Smoking signs posted									
Deadman Controls for loading stations									
2 Fire Extinguishers – Inspected/Accessible									
Boldly Marked Emergency Cutoffs – Location									
No Fuel Leaks									
Bonding wire/clips at loading stations/operable									
Piping/Pumps bonded and grounded									
No vegetation or materials to spread fire									
No evidence of Smoking									
Hoses in good condition									
Explosion Proof Electrical Equipment									
Remarks: _____									



U.S. Department
of Transportation

Federal Aviation
Administration

Advisory Circular

Subject: Painting, Marking, and Lighting of
Vehicles Used on an Airport

Date: April 1, 2010

AC No: AC 150/5210-5D

Initiated by: AAS-100

Change:

1. PURPOSE. This advisory circular (AC) provides guidance, specifications, and standards for painting, marking, and lighting of vehicles operating in the airport air operations area (AOA). The approved lights, colors, and markings herein assure the conspicuity of vehicles operating in the AOA from both the ground and the air.

2. CANCELLATION. This AC cancels AC 150/5210-5C, Painting, Marking, and Lighting of Vehicles Used on an Airport, dated August 31, 2007.

3. APPLICATION. The Federal Aviation Administration (FAA) recommends the guidelines and standards in this Advisory Circular for vehicles operating in the airport AOA. In general, use of this AC is not mandatory. *However*, use of this AC is mandatory for vehicles funded with federal grant monies through the Airport Improvement Program (AIP) and/or with revenue from the Passenger Facility Charges (PFC) Program. See Grant Assurance No. 34, "Policies, Standards, and Specifications," and PFC Assurance No. 9, "Standard and Specifications."

Vehicles covered by this AC that do not meet this standard may be used until the vehicle is repainted or replaced, but no later than **December 31, 2010**.

4. PRINCIPAL CHANGES. This AC contains new specifications and recommendations for the painting, marking, and lighting of Towbarless Tow Vehicles (TLTVs).

5. METRIC UNITS. To promote an orderly transition to metric units, this AC includes both English and metric dimensions. The metric conversions may not be exact equivalents, and until there is an official changeover to the metric system, the English dimensions will govern.

6. COMMENTS OR SUGGESTIONS for improvements to this AC should be sent to:

Manager, Airport Engineering Division
Federal Aviation Administration
ATTN: AAS-100
800 Independence Avenue, S.W.
Washington, DC 20591

Michael J. O'Donnell
Director of Airport Safety and Standards

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PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT

1. SOURCES OF APPLICABLE DOCUMENTS.

- a.** American National Standards Institute, Inc. (ANSI), 25 West 43rd St. 4th Floor, New York, NY 10036. Website: **www.ansi.org**
- b.** American Society for Testing & Materials (ASTM), ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. Website: **www.astm.org**
- c.** The National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts 02169-7471. Website: **www.nfpa.org**
- d.** The U. S. General Services Administration (GSA), Centralized Mailing List Services, 501 West Felix Street, Whse 9, South End P.O. Box 6477, Fort Worth, Texas 76115-6477. Website: **www.gsa.gov**
- e.** The Superintendent of Documents, U.S. Government Printing Office, 732 North Capitol St. NW, Washington, DC 20401.
- f.** Society of Automotive Engineers, Inc. (SAE), 400 Commonwealth Drive, Warrendale, PA 15096-0001. Website: **www.sae.org**
- g.** FAA Advisory Circulars: U.S. Department of Transportation, Subsequent Distribution Office, Ardmore East Business Center, 3341 Q 75th Ave., Landover, MD 20785. Website: **www.faa.gov**
- h.** FAA Engineering Briefs: **www.faa.gov/airports/engineering/engineering_briefs/**

2. DEFINITIONS. The following definitions apply in this AC:

- a. Vehicle** – All conveyances, except aircraft, used on the ground to transport persons, cargo, equipment or those required to perform maintenance, construction, service, and security duties.
- b. Air Operations Area (AOA)** – The portion of airport that encompasses the landing, take off, taxiing, and parking areas for aircraft.
- c. Airport Emergency Vehicles** – Vehicles that are authorized in the AOA for emergency purposes (e.g., ambulances, aircraft rescue and fire fighting (ARFF) vehicles and emergency response vehicles) as authorized by the airport traffic control tower (ATCT) or an authorized on-site accident/incident commander.
- d. Airport Operations Vehicles** – Vehicles routinely used by airport operations personnel for airport inspection and duties associated with airfield operations (such as airfield condition reporting and Incident Command) on the AOA and Movement Area.
- e. Airport Security Vehicles** – Vehicles that are authorized in the AOA for security purposes, as needed (e.g. police cars).

- f. Airfield Service Vehicles** – Vehicles that are routinely used in the AOA for airfield service, maintenance, or construction (e.g. snow blowers, snowplows, maintenance trucks, and tractors).
- g. Aircraft Support Vehicles** – Vehicles that are routinely used in the AOA to support aircraft operations (e.g. aircraft pushback tractors, baggage/cargo tractors or trucks, air conditioning and aviation fuel trucks). These vehicles are typically owned by airlines, vendors, or contractors and are not eligible for Federal funding.
- h. Reduced Visibility** – Prevailing visibility is less than one statute mile (1609 meters) and/or the runway visual range (RVR) is less than 6,000 feet (1830 meters).
- i. Movement Area** – The runways, taxiways, and other areas of an airport/heliport that are used for taxiing/hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. At those airports/heliports with an operating airport traffic control tower (ATCT), specific approval for entry onto the movement area must be obtained from air traffic control (ATC).
- j. Other Vehicles** – Vehicles that are not routinely authorized in the AOA (e.g. construction vehicles). These vehicles are typically owned by airlines, vendors, or contractors and are not eligible for Federal funding.
- k. Peak Intensity** – Peak intensity, for purposes of this document, means the maximum magnitude of luminescence as measured in candela.
- l. Towbarless Tow Vehicle (TLTV)** – a type of aircraft support vehicle whose main purpose is to tow aircraft in the AOA by way of nose gear capture.

3. VEHICLE PAINTING.

NOTE: *Airport vehicle paint and markings are a safety of flight requirement. The approved colors/markings herein assure conspicuity of vehicles operating in the AOA from both the ground and air.*

a. Airport Emergency Vehicles.

(1) Ambulances. Ambulance vehicles are painted per the most current version of Federal Specification KKK-A-1822, *Federal Specification for the Star-of-Life Ambulance*. Ambulances are not considered vehicles routinely operating on the AOA.

(2) Aircraft Rescue and Fire Fighting (ARFF) Vehicles. Yellowish-green is the vehicle color standard. Color specifications are per Appendix A.

NOTE: *A yellowish-green color provides optimum visibility during all light levels encountered during a 24-hour day and under variations of light that result from weather and seasonal changes.*

b. Airport Operations Vehicles. Airport operations vehicles may be painted in colors designated by the airport operator. The characteristics must be coordinated with the respective ATCT and identified in the tower letter of agreement.

c. Airport Security Vehicles. Comply with specific state or local requirements.

d. Airfield Service Vehicles. Chrome yellow is the vehicle color standard. Color specifications are per Appendix A. When vehicles are equipped with bumper bars 8 inches (200 mm) or more in depth, the bars must be painted in alternate stripes 4 inches (100 mm) in width of chrome yellow and black inclined 45° to the vertical.

e. Aircraft Support Vehicles.

(1) Any color or combination of colors other than yellowish-green or chrome yellow. The bumper bar paint scheme in paragraph 3.d (of alternating chrome yellow and black stripe) is recommended.

(2) **TLTVs.** International orange is the vehicle color standard. Retroreflective tape covering more than 25 percent of the vehicle's vertical surfaces may be used as a temporary measure to meet this standard prior to scheduled vehicle painting.

f. Other Vehicles. Any color or combination of colors other than solid black or white.

4. VEHICLE MARKING.

a. Airport Emergency Vehicles.

(1) **Ambulances.** Ambulances are marked per the most current version of Federal Specification KKK-A-1822.

(2) **ARFF Vehicles.** Emergency rescue and fire fighting vehicles are marked with the letters "ARFF," "Fire," or "Rescue" and in accordance with 4.c.(1)-(5) of this AC.

b. Airport Operations Vehicles. Airport operations vehicles may be marked as designated by the airport operator. Marking must be coordinated with the respective ATCT and identified in the tower letter of agreement.

c. Airfield Service Vehicles and Aircraft Support Vehicles.

(1) Airport operator owned vehicles must display an identification number on each side and on the roof (the hood should be used if the vehicle has no roof).

(2) Side numbers will be a minimum of 16 inches (410 mm) in height and conspicuously located.

(3) Roof numbers will be a minimum of 24 inches (610 mm) in height and affixed with their bases toward the front of the vehicle. The identification numbers should provide sharp color contrast to the vehicle color.

(4) In addition to the identification numbers, airport operator-owned vehicles must display either the name of the airport and/or the airport insignia.

(5) To further improve night-time recognition of vehicles, a minimum 8 inch (200 mm) wide horizontal band of high gloss white paint or white reflective tape (Retroreflective, ASTM-D 4956-09, *Standard Specification for Retroreflective Sheeting for Traffic Control*, Type III & above) must be used around the vehicle's surface. Figures 1, 2, and 3 show suggested locations for the horizontal reflective band.

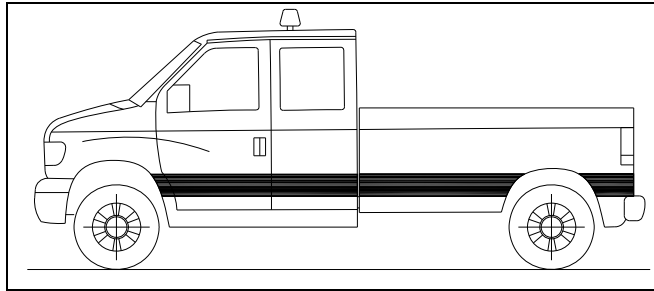


Figure 1: Suggested location for the horizontal reflective band, Option 1

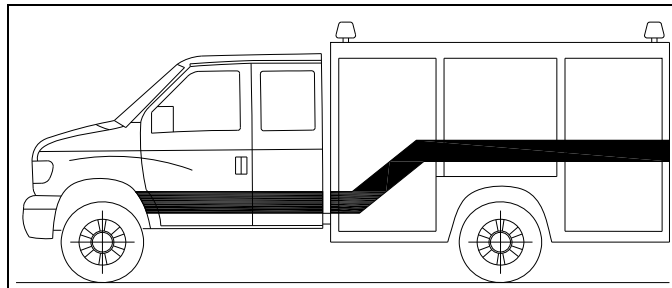


Figure 2: Suggested location for the horizontal reflective band, Option 2

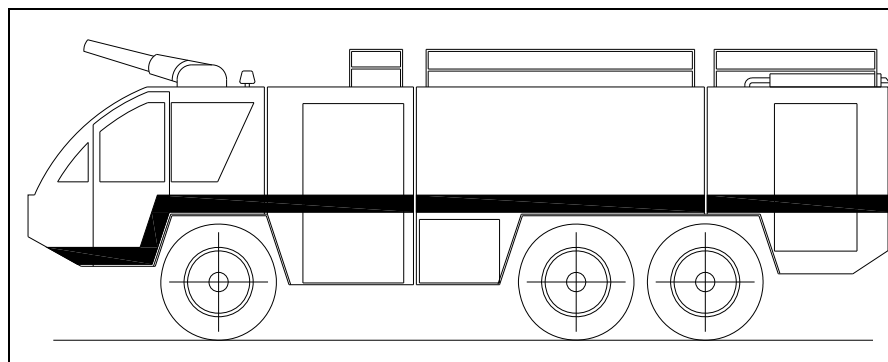


Figure 3: Suggested location for the horizontal reflective band, Option 3

(6) **TLTVs.** Retroreflective tape is used to outline the shape of a TLTV. If the vertical edge of the vehicle is rounded, the tape should be placed on the rounded portion to reflect light in both the horizontal and vertical planes. Where the placement of the tape may interfere with, or may be worn down by, maintenance or operational activities, tape is not required. Suggested locations for the retroreflective bands are shown in Figure 4.

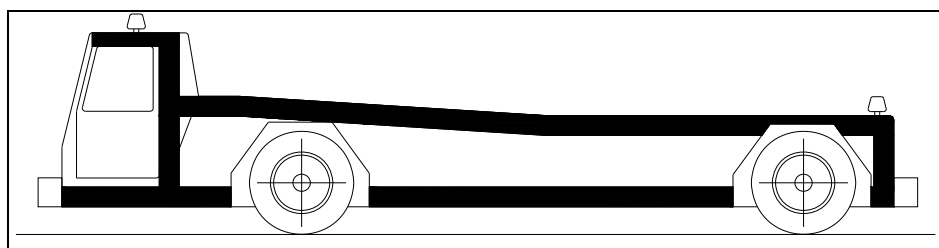


Figure 4: Suggested placement of retroreflective tape on a TLTV

d. Airport Security and Other Vehicles.

(1) Vehicles other than those that routinely traverse any portion of the AOA under the control of ATC, which are not escorted by a vehicle in constant two-way radio communication with ATC and properly equipped and authorized to operate in the AOA, must be provided with a flag on a staff attached to the vehicle so that the flag will be readily visible.

(2) At airports without air traffic control facilities, flags must be provided on all vehicles.

(3) The flag must be at least a 3-foot by 3-foot (0.9 meter by 0.9 meter) square having a checkered pattern of international orange and white squares at least 1 foot (300 mm) on each side (see Appendix A for the fabric color specification).

5. VEHICLE LIGHTING.

a. Airfield Service, Aircraft Support, and Airport Operations Vehicles.

(1) The standard for identification lighting is a yellow flashing light that is mounted on the uppermost part of the vehicle structure. A steady yellow light designates vehicles limited to non-movement areas.

(2) The light must be visible from any direction, day and night, including from the air.

(3) Color specifications for vehicle identification lights are per Appendix B.

(4) **TLTVs.** An LED light bar placed above the operator's cab may be used in place of the rotating yellow flashing light. In addition, a yellow flashing light (of any type) must be installed on the upper left-rear and right-rear corners of the TLTV, and must be activated when an aircraft is in tow. The size of the rear flashing lights must be large enough to meet the requirements of Section 5.c, but not so large as to interfere with the normal or towing operations of the TLTV.

b. Airport Emergency, Security, and Other Vehicles, which are not escorted by a properly lighted vehicle, must be identified during periods of low visibility by a light.

c. Characteristics of Flashing Lights:

(1) Ambulance lights must meet the specifications in the most current version of Federal Specification KKK-A-1822, and ARFF vehicles must meet NFPA, state, and local requirements.

(2) Lights must have peak intensity within the range of 40 to 400 candelas (effective) from 0° (horizontal) up to 10° above the horizontal and for 360° horizontally. The upper limit of 400 candelas (effective) is necessary to avoid damage to night vision.

(3) From 10° to 15° above the horizontal plane, the light output must be 1/10th of peak intensity or between 4 and 40 candelas (effective).

- (4) Lights must flash at 75 ± 15 flashes per minute.

NOTES:

- 1. The effective intensity of a flashing light is equal to the intensity of a steady-burning (fixed) light of the same color that produces the same visual range under identical conditions of observation.*
- 2. If xenon flashtubes are used, refer to AC 150/5345-43, Specification for Obstruction Lighting Equipment, for guidance concerning methods of calculating effective intensity.*

d. Light Colors.

(1) Airport Emergency Vehicles.

(a) **Ambulances.** Per the most current version of Federal Specification KKK-A-1822.

(b) **ARFF Vehicles.** Red or a combination of red-and-white flashing lights per the chromaticity requirements in Appendix B.

(2) Airport Security Vehicles. Signal blue or a combination of red and signal blue flashing light per the chromaticity requirements in Appendix B.

(3) Airfield Service, Aircraft Support, Airport Operations, and Other Vehicles. Yellow flashing light per the chromaticity requirements in Appendix B.

APPENDIX A. COLOR SPECIFICATIONS

A-1. SPECIFICATIONS. Colors specified in Table A-1 are per the Commission Internationale de l'Eclairage (CIE) L*a*b* system of color specification. For a description of this system, refer to American Society for Testing & Materials (ASTM) D 2244, *Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates*.

Table A-1. Specification for vehicle and flag colors

Standard Illuminant D65 Usage	Chrome Yellow			Yellowish-Green			International Orange		
	Vehicle Paint			Vehicle Paint			Vehicle Paint / Flag Fabric		
CIELAB DATA	L*	a*	b*	L*	a*	b*	L*	a*	b*
Centroid Color	72.8	24.4	77.6	78.3	-10.2	80.4	45.0	53.5	52.0
Point 1	72.8	31.8	82.9	78.3	-9.0	92.0	45.0	61.4	47.8
Point 2	72.8	25.5	66.7	78.3	-7.6	73.2	45.0	53.9	41.4
Point 3	72.8	18.0	69.3	78.3	-11.0	69.3	45.0	53.5	53.4
Point 4	72.8	22.4	86.0	78.3	-13.4	86.2	45.0	49.7	60.4
Light Limit	77.8			83.3			49.9		
Dark Limit	67.8			73.3			41.6		
Max ΔE	11.1			11.7			10.7		

A-2. COLOR TESTS. Acceptable colors are those that meet the gloss rating test and either a visual or an instrumental color test as follows:

NOTE: Flag fabric colors must meet either the instrumental tests in Table A-1 or the visual method described in paragraph A-2b(1).

a. Gloss Rating Test. This test is performed per ASTM D 523, *Standard Test Method for Specular Gloss*, on a paint sample of the color to be applied on the vehicle. An acceptable color sample is high gloss with a minimum gloss rating of 70 units, for 60° geometry.

b. Color Test Methods:

(1) Visual. Prepare a master specimen of the color (per Table A-1) and gloss (per paragraph A-2a). This specimen will be the master color and be used as the basis of comparison per ASTM D 5531-05, *Standard Guide for the Preparation, Maintenance, and Distribution of Physical Product Standards for Color and Geometric Appearance of Coatings*. To verify the paint color of a vehicle visually, vehicle paint samples must be

prepared and viewed per ASTM D 1729-96 (Reapproved 2009), *Standard Practice for Visual Appraisal of Colors and Color Differences of Diffusely-Illuminated Opaque Materials*.

(2) Instrumental. This test requires a test specimen sample and reference to Table A-1. All test specimen measurements should be conducted per ASTM E 1164-09a *Standard Practice for Obtaining Spectrometric Data for Object-Color Evaluation*. Test specimen tolerances must be per Table A-1 per the following:

(a) Plot the centroid color using the a^* and b^* CIELAB coordinate data from Table A-1 on graph paper or by entry of the coordinate data into a computer program. Plot and connect points 1 through 4 from the same table to form a quadrilateral; noting that the centroid color is within this figure. See Figure A-1 for plots of all three color specifications in Table A-1.

(b) Perform color sample measurements per ASTM E 1164-09a. If necessary, convert measurements to CIELAB L^* , a^* , and b^* color space. See ASTM E 308-08, *Standard Practice for Computing the Colors of Objects by Using the CIE System*, for color space conversion formulae.

(c) An acceptable color is one that meets:

(i) the chromaticity requirements of the color samples a^* and b^* CIELAB coordinate data by falling within the quadrilateral;

(ii) the L^* data lightness requirement by falling within the range defined by the light and dark data of Table A-1;

(iii) the total color difference (ΔE) by not exceeding the limits in Table A-1 when the CIELAB data are computed in the following formula:

$$\Delta E = (\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2})^{\frac{1}{2}}$$

where ΔL^* , Δa^* , and Δb^* values are the differences between those values for the centroid color in Table A-1 and those of the color sample measurements.

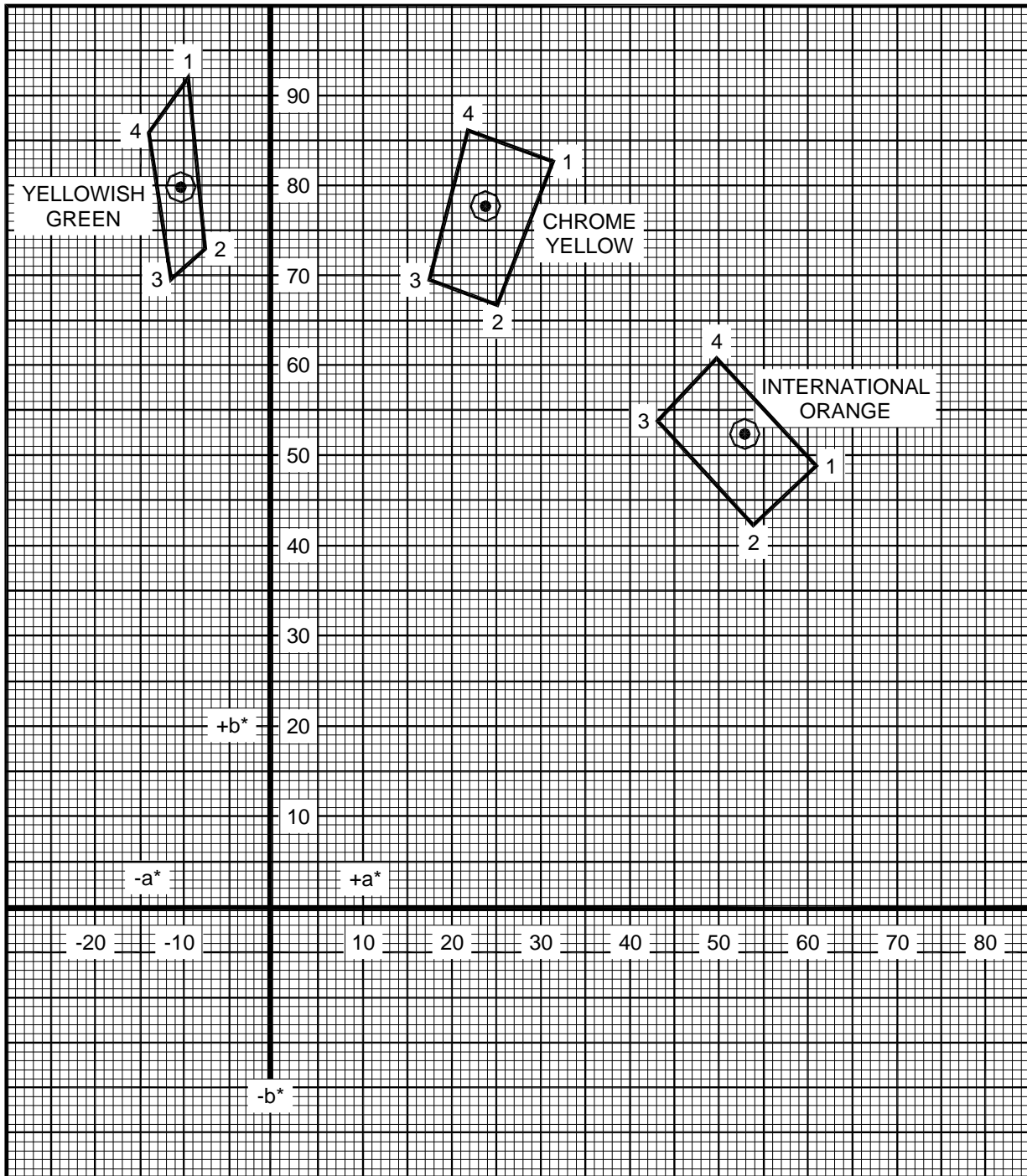


Figure A-1. Plot of selected color paint specifications

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APPENDIX B. COLOR SPECIFICATIONS FOR VEHICLE IDENTIFICATION LIGHTS

B-1. SPECIFICATIONS. The Society of Automotive Engineers (SAE) Standard J578 Revised December 2006, *Color Specification*, defines the acceptable color boundary limits and measurement of emitted red, white, signal blue, and yellow light for vehicle lights. This standard applies to the overall emitted color of light from the device in lieu of emitted light from any small area of the lens. The color of emitted light must fall within the color boundaries per SAE J578 Revised December 2006 (color boundary equations are in the standard) using color measurement methods detailed in the standard. See FAA Engineering Brief #67, Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures, for additional information and Alternative Lighting Devices.

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: OPERATIONAL SAFETY ON AIRPORTS
DURING CONSTRUCTION

Date: 1/17/03

Initiated by: AAS-300

AC No: 150/5370-2E

Change:

1. THE PURPOSE OF THIS ADVISORY CIRCULAR (AC).

Aviation safety is the primary consideration at airports, especially during construction. This AC sets forth guidelines for operational safety on airports during construction. It contains major changes to the following areas: "Runway Safety Area," paragraph 3-2; "Taxiway Safety Areas/Object-Free Areas," paragraph 3-3; "Overview," paragraph 3-4; "Marking Guidelines for Temporary Threshold," paragraph 3-5; and "Hazard Marking and Lighting," paragraph 3-9.

2. WHAT THIS AC CANCELS.

This AC cancels AC 150/5370-2D, *Operational Safety on Airports During Construction*, dated May 31, 2002.

3. READING MATERIAL RELATED TO THIS AC.

Appendix 1 contains a list of reading materials on airport construction, design, and potential safety hazards during construction, as well as instructions for ordering these documents. Many of them, including this AC, are available on the Federal Aviation Administration (FAA) Web site.

4. WHO THIS AC AFFECTS.

This AC assists airport operators in complying with 14 Code of Federal Regulations (CFR), part 139, Certification and Operation: Land Airports Serving Certain Air Carriers, and with the requirements of airport construction projects receiving funds under the Airport Improvement Program or from the Passenger Facility Charge Program. While the FAA does not require noncertificated airports without grant agreements to adhere to these guidelines, we recommend that they do so as it will help these airports maintain a desirable level of operational safety during construction.

5. ADDITIONAL BACKGROUND INFORMATION.

Appendix 2 contains definitions of terms used in this AC. Appendix 3 provides airport operators with boilerplate format and language for developing a safety plan for an airport construction project. Appendix 4 is a sample Notice to Airmen form.

6. HAZARD LIGHTING IMPLEMENTATION TIME LINE.

Supplemental hazard lighting must be red in color by October 1, 2004. See paragraph 3-9 for more information.

DAVID L. BENNETT

Director, Office of Airport Safety and Standards

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CHAPTER 1. GENERAL SAFETY REQUIREMENTS AND RESPONSIBILITIES

1-1. OVERVIEW.

Hazardous practices and marginal conditions created by construction activities can decrease or jeopardize operational safety on airports. To minimize disruption of normal aircraft operations and to avoid situations that compromise the airport's operational safety, the airport operator must carefully plan, schedule, and coordinate construction activities. While the guidance in this AC is primarily used for construction operations, some of the methods and procedures described may also enhance day-to-day maintenance operations.

1-2. WHO IS RESPONSIBLE FOR SAFETY DURING CONSTRUCTION.

An airport operator has overall responsibility for construction activities on an airport. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on these responsibilities can be found throughout this AC.

a. Airport operator's responsibilities—

- (1) Develop internally or approve a construction safety plan developed by an outside consultant/contractor that complies with the safety guidelines in Chapter 2, "Safety Plans," and Appendix 3, "Airport Construction Safety Planning Guide," of this AC.
- (2) Require contractors to submit plans indicating how they intend to comply with the safety requirements of the project.
- (3) Convene a meeting with the construction contractor, consultant, airport employees, and, if appropriate, tenant sponsor to review and discuss project safety before beginning construction activity.
- (4) Ensure contact information is accurate for each representative/point of contact identified in the safety plan.
- (5) Hold weekly or, if necessary, daily safety meetings to coordinate activities.
- (6) Notify users, especially aircraft rescue and fire fighting (ARFF) personnel, of construction activity and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAMs) or other methods, as appropriate. Convene a meeting for review and discussion if necessary.
- (7) Ensure that construction personnel know of any applicable airport procedures and of changes to those procedures that may affect their work.

(8) Ensure that construction contractors and subcontractors undergo training required by the safety plan.

(9) Develop and/or coordinate a construction vehicle plan with airport tenants, the airport traffic control tower (ATCT), and construction contractors. Include the vehicle plan in the safety plan. See Chapter 2, section 2, of this AC for additional information.

(10) Ensure tenants and contractors comply with standards and procedures for vehicle lighting, marking, access, operation, and communication.

(11) At certificated airports, ensure that each tenant's construction safety plan is consistent with 14 CFR part 139, Certification and Operations: Land Airports Serving Certain Air Carriers.

(12) Conduct frequent inspections to ensure construction contractors and tenants comply with the safety plan and that altered construction activities do not create potential safety hazards.

(13) Resolve safety deficiencies immediately.

(14) Ensure construction access complies with the security requirements of 49 CFR part 1542, Airport Security.

(15) Notify appropriate parties when conditions exist that invoke provisions of the safety plan (e.g., implementation of low-visibility operations).

b. Construction contractor's responsibilities—

- (1) Submit plans to the airport operator on how to comply with the safety requirements of the project.
- (2) Have available a copy of the project safety plan.
- (3) Comply with the safety plan associated with the construction project and ensure that construction personnel are familiar with safety procedures and regulations on the airport.
- (4) Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
- (5) Provide a safety officer/construction inspector familiar with airport safety to monitor construction activities.
- (6) Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate.

(7) Ensure that no construction employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations areas (AOAs) from the construction site unless authorized.

c. Tenant's responsibilities if planning construction activities on leased property—

(1) Develop a safety plan, and submit it to the airport operator for approval prior to issuance of a Notice to Proceed.

(2) Provide a point of contact who will coordinate an immediate response to correct any

construction-related activity that may adversely affect the operational safety of the airport.

(3) Ensure that no tenant or construction employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.

(4) Restrict movement of construction vehicles to construction areas by flagging and barricading or erecting temporary fencing.

CHAPTER 2. SAFETY PLANS

Section 1. Basic Safety Plan Considerations

2-1. OVERVIEW.

Airport operators should coordinate safety issues with the air carriers, FAA Airway Facilities, and other airport tenants before the design phase of the project. The airport operator should identify project safety concerns, requirements, and impacts before making arrangements with contractors and other personnel to perform work on an airport. These safety concerns will serve as the foundation for the construction safety plan and help maintain a high level of aviation safety during the project.

The airport operator should determine the level of complexity of the safety plan that is necessary for each construction project and its phases. The safety plan may be detailed in the specifications included in the invitation for bids, or the invitation for bid may specify that the contractor develop the safety plan and the airport operator approve it. In the latter case, the invitation for bid should contain sufficient information to allow the contractor to develop and determine the costs associated with the safety plan. In either case, safety plan costs should be incorporated into the total cost of the project. The airport operator has final approval authority and responsibility for all safety plans.

Coordination will vary from formal predesign conferences to informal contacts throughout the duration of the construction project.

Details of a specified safety plan, or requirements for a contractor-developed safety plan, should be discussed at the predesign and preconstruction conferences and should include the following, as appropriate:

- a. Actions necessary before starting construction, including defining and assigning responsibilities.
- b. Basic responsibilities and procedures for disseminating instructions about airport procedures to the contractor's personnel.
- c. Means of separating construction areas from aeronautical-use areas.
- d. Navigational aid (NAVAID) requirements and weather.
- e. Marking and lighting plan illustrations.
- f. Methods of coordinating significant changes in airport operations with all the appropriate parties.

2-2. SAFETY PLAN CHECKLIST.

To the extent applicable, the safety plan should address the following:

- a. Scope of work to be performed, including proposed duration of work.
- b. Runway and taxiway marking and lighting.
- c. Procedures for protecting all runway and taxiway safety areas, obstacle-free zones (OFZs), object-free areas (OFAs), and threshold citing criteria outlined in AC 150/5300-13, *Airport Design*, and as described in this AC. This includes limitations on equipment height and stockpiled material.
- d. Areas and operations affected by the construction activity, including possible safety problems.
- e. NAVAIDs that could be affected, especially critical area boundaries.
- f. Methods of separating vehicle and pedestrian construction traffic from the airport movement areas. This may include fencing off construction areas to keep equipment operators in restricted areas in which they are authorized to operate. Fencing, or some other form of restrictive barrier, is an operational necessity in some cases.
- g. Procedures and equipment, such as barricades (identify type), to delineate closed construction areas from the airport operational areas, as necessary.
- h. Limitations on construction.
- i. Required compliance of contractor personnel with all airport safety and security measures.
- j. Location of stockpiled construction materials, construction site parking, and access and haul roads.
- k. Radio communications.
- l. Vehicle identification.
- m. Trenches and excavations and cover requirements.

- n. Procedures for notifying ARFF personnel if water lines or fire hydrants must be deactivated or if emergency access routes must be rerouted or blocked.
- o. Emergency notification procedures for medical and police response.
- p. Use of temporary visual aids.
- q. Wildlife management.
- r. Foreign object debris (FOD) control provisions.
- s. Hazardous materials (HAZMAT) management.
- t. NOTAM issuance.
- u. Inspection requirements.
- v. Procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas.

w. Procedures for contacting responsible representatives/points of contact for all involved parties. This should include off-duty contact information so an immediate response may be coordinated to correct any construction-related activity that could adversely affect the operational safety of the airport. Particular care should be taken to ensure that appropriate Airways Facilities personnel are identified in the event that an unanticipated utility outage or cable cut occurs that impacts FAA NAVAIDS.

x. Vehicle operator training.

y. Penalty provisions for noncompliance with airport rules and regulations and the safety plan (e.g., if a vehicle is involved in a runway incursion).

z. Any special conditions that affect the operation of the airport and will require a portion of the safety plan to be activated (e.g., low-visibility operations, snow removal).

Section 2. Safety and Security Measures

2-3. OVERVIEW.

Airport operators are responsible for closely monitoring tenant and construction contractor activity during the construction project to ensure continual compliance with all safety and security requirements. Airports subject to 49 CFR part 1542, Airport Security, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel. In addition, airport operators should use safety program standards, as described in Chapter 3 of this AC, to develop specific safety measures to which tenants and construction contractors must adhere throughout the duration of construction activities.

General safety provisions are contained in AC 150/5370-10, *Standards for Specifying Construction of Airports*, paragraphs 40-05, "Maintenance of Traffic"; 70-08, "Barricades, Warning Signs, and Hazard Markings"; and 80-04, "Limitation of Operations." At any time during construction, aircraft operations, weather, security, or local airport rules may dictate more stringent safety measures. The airport operator should ensure that both general and specific safety requirements are coordinated with airport tenants and ATCT personnel. The airport operator should also include these parties in the coordination of all bid documents, construction plans, and specifications for on-airport construction projects.

2-4. VEHICLE OPERATION AND MARKING AND PEDESTRIAN CONTROL.

Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. This includes aircraft movement and nonmovement areas. The airport operator should develop and coordinate a construction vehicle plan with airport tenants, contractors, and the ATCT. The safety plan or invitation for bid should include specific vehicle and pedestrian requirements.

The vehicle plan should contain the following items:

- a. Airport operator's rules and regulations for vehicle marking, lighting, and operation.
- b. Requirements for marking and identifying vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*.
- c. Description of proper vehicle operations on movement and nonmovement areas under normal, lost communications, and emergency conditions.
- d. Penalties for noncompliance with driving rules and regulations.
- e. Training requirements for vehicle drivers to ensure compliance with the airport operator's vehicle rules and regulations.
- f. Provisions for radio communication training for construction contractor personnel engaged in construction activities around aircraft movement areas. Some drivers,

such as construction drivers under escort, may not require this training.

g. Escort procedures for construction vehicles requiring access to aircraft movement areas. A vehicle in the movement area must have a working aviation-band, two-way radio unless it is under escort. Vehicles can be in closed areas without a radio if the closed area is properly marked and lighted to prevent incursions and a NOTAM regarding the closure is issued.

h. Monitoring procedures to ensure that vehicle drivers are in compliance with the construction vehicle plan.

i. Procedures for, if appropriate, personnel to control access through gates and fencing or across aircraft movement areas.

2-5. CONSTRUCTION EMPLOYEE PARKING AREAS.

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the airport movement area. These areas should provide reasonable contractor employee access to the job site.

2-6. CONSTRUCTION VEHICLE EQUIPMENT PARKING.

Construction employees must park and service all construction vehicles in an area designated by the airport operator outside the runway safety areas and OFZs and never on a closed taxiway or runway. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (e.g., overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigational aids. The FAA must also study those areas to determine effects on 14 CFR part 77, *Objects Affecting Navigable Airspace*, surfaces (see paragraph 2-13 for further information).

2-7. RADIO COMMUNICATION TRAINING.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement

areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCTs. Training of contractors on proper communication procedures is essential for maintaining airport operational safety. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact with airport operations, ATCT, or the Common Traffic Advisory Frequency, which may include UNICOM, MULTICOM, or one of the FAA Flight Service Stations (FSS), as directed by airport management.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport. Vehicle drivers must confirm by personal observation that no aircraft is approaching their position when given clearance to cross a runway. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure (see the FAA safety placard “Ground Vehicle Guide to Airport Signs and Markings”). This safety placard may be ordered through the Runway Safety Program Web site at <http://www.faarsp.org> or obtained from the Regional Airports Division Office.

2-8. FENCING AND GATES.

Airport operators and contractors must take care to maintain a high level of safety and security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and people (especially minors). Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit “piggybacking” behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

Section 3. Notification of Construction Activities

2-9. GENERAL.

In order to maintain the desired levels of operational safety on airports during construction activities, the safety

plan should contain the notification actions described below.

2-10. ENSURING PROMPT NOTIFICATIONS.

The airport operator should establish and follow procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of an airport.

2-11. NOTICES TO AIRMEN (NOTAMS).

The airport operator must provide information on closed or hazardous conditions on airport movement areas to the FSS so it can issue a NOTAM. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMS about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMS) for Airport Operators*, and Appendix 4 in this AC for a sample NOTAM form. Only the FAA may issue or cancel NOTAMS on shutdown or irregular operation of FAA-owned facilities. Only the airport operator or an authorized representative may issue or cancel NOTAMS on airport conditions. (The airport owner/operator is the only entity that can close or open a runway.) The airport operator must file and maintain this list of authorized representatives with the FSS. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator.

2-12. AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) NOTIFICATION.

The safety plan must provide procedures for notifying ARFF personnel, mutual aid providers, and other emergency services if construction requires shutting off or otherwise disrupting any water line or fire hydrant on the airport or adjoining areas and if contractors work with hazardous material on the airfield. Notification procedures must also be developed for notifying ARFF and all other emergency personnel when the work performed will close or affect any emergency routes. Likewise, the procedures must address appropriate notifications when services are restored.

2-13. NOTIFICATION TO THE FAA.

For certain airport projects, 14 CFR part 77 requires notification to the FAA. In addition to applications made for Federally funded construction, 14 CFR part 157, Notice of Construction, Alteration, Activation, and

Deactivation of Airports, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, Notice of Landing Area Proposal, to the nearest FAA Regional Airports Division Office or Airports District Office.

Also, any person proposing any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR part 77 must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, etc.). FAA Form 7460-1, Notice of Proposed Construction or Alteration, can be used for this purpose and submitted to the FAA Regional Airports Division Office or Airports District Office. (See AC 70/7460-2, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace*.)

If construction operations require a shutdown of an airport owned NAVAID from service for more than 24 hours or in excess of 4 hours daily on consecutive days, we recommend a 45-day minimum notice prior to facility shutdown. Coordinate work for a FAA owned NAVAID shutdown with the local FAA Airways Facilities Office. In addition, procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDS must be addressed.

2-14. WORK SCHEDULING AND ACCOMPLISHMENT.

Airport operators—or tenants having construction on their leased properties—should use predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction (see AC 150/5300-9, *Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects*). The airport operator, tenants, and construction contractors should integrate operational safety requirements into their planning and work schedules as early as practical. Operational safety should be a standing agenda item for discussion during progress meetings throughout the project. The contractor and airport operator should carry out onsite inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

CHAPTER 3. SAFETY STANDARDS AND GUIDELINES

Section 1. Runway and Taxiway Safety Areas, Obstacle-Free Zones, and Object-Free Areas

3-1. OVERVIEW.

Airport operators must use these safety guidelines when preparing plans and specifications for construction activities in areas that may interfere with aircraft operations. The safety plan should recognize and address these standards for each airport construction project. However, the safety plan must reflect the specific needs of a particular project, and for this reason, these safety guidelines should not be incorporated verbatim into project specifications. For additional guidance on meeting safety and security requirements, refer to the planning guide template included in Appendix 3 of this AC.

3-2. RUNWAY SAFETY AREA (RSA)/ OBSTACLE-FREE ZONE (OFZ).

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13, *Airport Design*). Construction activities within the standard RSA are subject to the following conditions:

a. Runway edges.

(1) No construction may occur closer than 200 feet (60m) from the runway centerline unless the runway is closed or restricted to aircraft operations, requiring an RSA that is equal to the RSA width available during construction, or 400 feet, whichever is less (see AC 150/5300-13, Tables 3-1 through 3-3).

(2) Personnel, material, and/or equipment must not penetrate the OFZ, as defined in AC 150/5300-13.

(3) The airport operator must coordinate the construction activity in the RSA as permitted above with the ATCT and the FAA Regional Airports Division Office or appropriate Airports District Office and issue a local NOTAM.

b. Runway ends.

(1) An RSA must be maintained of such dimensions that it extends beyond the end of the runway a distance equal to that which existed before construction activity, unless the runway is closed or restricted to aircraft operations for which the reduced RSA is adequate (see AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may help provide the necessary RSA.

In addition, all personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in Appendix 2, "Threshold Siting Requirements," of AC 150/5300-13.¹ Consult with the appropriate FAA Regional Airports Division Office or Airports District Office to determine the appropriate approach surface required.

(2) Personnel, material, and/or equipment must not penetrate the OFZ, as defined in AC 150/5300-13.

(3) The safety plan must provide procedures for ensuring adequate distance for blast protection, if required by operational considerations.

(4) The airport operator must coordinate construction activity in this portion of the RSA with the ATCT and the FAA Regional Airports Division Office or appropriate Airports District Office and issue a local NOTAM.

c. Excavations.

(1) Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

(2) Open trenches or excavations are not permitted within 200 feet (60m) of the runway centerline and at least the existing RSA distance from the runway threshold while the runway is open. If the runway must be opened before excavations are backfilled, cover the excavations appropriately. Coverings for open trenches or excavations must be of sufficient strength to support the weight of the heaviest aircraft operating on the runway.

3-3. TAXIWAY SAFETY AREAS/OBJECT-FREE AREAS.

a. Unrestricted construction activity is permissible adjacent to taxiways when the taxiway is restricted to aircraft such that the available taxiway safety area is equal

¹If a full safety area cannot be obtained through declared distances and partial closures, or other methods such as alternate runway use, construction activity may operate in the RSA as long as conditions cited in paragraph 3-1b(2) thru (4) are met. In addition, various surfaces outlined in AC 150/5300-13 and Terminal Instrument Procedures (TERPS) must be protected through an aeronautical study.

to at least ½ of the widest wingspan of the aircraft expected to use the taxiway and the available taxiway object-free area is equal to at least .7 times the widest wingspan plus 10 feet. (See AC 150/5300-13 for guidance on taxiway safety and object-free areas.)

Construction activity may be accomplished closer to a taxiway, subject to the following restrictions:

- (1) The activity is first coordinated with the airport operator.
- (2) Appropriate NOTAMs are issued.
- (3) Marking and lighting meeting the provisions of paragraph 3-9 are implemented.
- (4) Adequate clearance is maintained between equipment and materials and any part of an aircraft. If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its

main landing gear at the edge of the pavement), then it will be necessary to move personnel and equipment for each passing aircraft. In these situations, flag persons will be used to direct construction equipment, and wing walkers may be necessary to guide aircraft. Wing walkers should be airline/aviation personnel rather than construction workers.

b. Construction contractors must prominently mark open trenches and excavations at the construction site, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness

c. Excavations and open trenches may be permitted up to the edge of a structural taxiway and apron pavement provided the dropoff is marked and lighted per paragraph 3-9, "Hazard Marking and Lighting."

Section 2. Temporary Runway Thresholds

3-4. OVERVIEW.

Construction activity in a runway approach area may result in the need to partially close a runway or displace the existing runway threshold. In either case, locate the threshold in accordance with Appendix 2 of AC 150/5300-13, *Airport Design*. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate these objects with the FAA's Regional Airports Office or appropriate Airports District Office, as necessary. Refer to the current edition of AC 150/5300-13 for guidance on threshold siting requirements. The partial runway closure, the displacement of the runway threshold, as well as closures of the complete runway and other portions of the movement area also requires coordination with appropriate ATCT personnel and airport users.

Caution regarding partial runway closures: When filing a NOTAM for a partial runway closure, clearly state to FSS personnel that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold).

Example NOTAM: "North 1,000 feet of Runway 18/36 is closed; 7,000 feet remain available on Runway 18 and Runway 36 for arrivals and departures." There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition.

Caution regarding displaced thresholds:

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA),

such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, etc. within the RSA of any usable runway end, we do not recommend a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

3-5. MARKING GUIDELINES FOR TEMPORARY THRESHOLD.

Ensure that markings for temporary displaced thresholds are clearly visible to pilots approaching the airport to land. When construction personnel and equipment are located close to any threshold, a temporary visual NAVAID, such as runway end identifier lights (REIL), may be required (even on unlighted runways) to define the new beginning of the runway clearly. A visual vertical guidance device, such as a visual approach slope indicator (VASI), pulse light approach slope indicator (PLASI), or precision approach path indicator (PAPI), may be necessary to assure landing clearance over personnel, vehicles, equipment, and/or above-grade stockpiled materials. If such devices are installed, ensure an appropriate descriptive NOTAM is issued to inform pilots of these conditions. The current edition of AC 150/5340-1, *Standards for Airport Markings*, describes standard marking colors and layouts. In addition, we recommend that a temporary runway threshold be marked using the following guidelines:

a. Airport markings must be clearly visible to pilots; not misleading, confusing, or deceptive; secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents; and constructed of

materials that would minimize damage to an aircraft in the event of inadvertent contact.

(1) Pavement markings for temporary closed portions of the runway should consist of yellow chevrons to identify pavement areas that are unsuitable for takeoff/landing (see AC 150/5340-1). If unable to paint the markings on the pavement, construct them from any of the following materials: double-layered painted snow fence, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and secured to prevent movement by prop wash, jet blast, or other wind currents.

(2) It may be necessary to remove or cover runway markings, such as runway designation markings and aiming point markings, depending on the length of construction and type of activity at the airport.

(3) When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, use a white threshold bar of the dimensions specified in AC 150/5340-1.

(4) If temporary outboard elevated or flush threshold bars are used, locate them outside of the runway pavement surface, one on each side of the runway. They should be at least 10 feet (3m) in width and extend outboard from each side of the runway so they are clearly visible to landing and departing aircraft. These threshold bars are white. If the white threshold bars are not discernable on grass or snow, apply a black background with appropriate material over the ground to ensure the markings are clearly visible.

(5) A temporary threshold may also be marked with the use of retroreflective, elevated markers. One side of such markers is green to denote the approach end of the runway; the side that is seen by pilots on rollout is red. See AC 150/5345-39, *FAA Specification L-853, Runway and Taxiway Retroreflective Markers*.

(6) At 14 CFR part 139 certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR part 139.309). However, at noncertificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39.

b. The application rate of the paint to mark a short-term temporary runway threshold may deviate from the standard (see Item P-620, "Runway and Taxiway Painting," in AC 150/5370-10, *Standards for Specifying Construction of Airports*), but the dimensions must meet the existing standards, unless coordinated with the appropriate offices.

c. When a runway is partially closed, the distance remaining signs for aircraft landing in the opposite direction should be covered or removed during the construction.

3-6. LIGHTING GUIDELINES FOR TEMPORARY THRESHOLD.

A temporary runway threshold must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions. We recommend that temporary threshold lights and related visual NAVAIDs be installed outboard of the edges of the full-strength pavement with bases at grade level or as low as possible, but not to exceed 3 inches (7.6cm) above ground. When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage (see AC 150/5370-10). We recommend that the following be observed when using temporary runway threshold lighting:

a. Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-24, *Runway and Taxiway Edge Lighting System*. Battery-powered, solar, or portable lights that meet the criteria in AC 150/5345-50, *Specification for Portable Runway Lights*, may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operation but may be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

b. When the runway has been partially closed, disconnect edge and threshold lights with associated isolation transformers on that part of the runway at and behind the threshold (i.e., the portion of the runway that is closed). Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value.

c. Secure, identify, and place any temporary exposed wiring in conduit to prevent electrocution and fire ignition sources.

d. Reconfigure yellow lenses (caution zone), as necessary. If the runway has centerline lights, reconfigure the red lenses, as necessary, or place the centerline lights out of service.

e. Relocate the visual glide slope indicator (VGSI), such as VASI and PAPI; other airport lights, such as REIL; and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI,

coordinate its installation or disabling with the local Airway Facilities Systems Management Office.

f. Issue a NOTAM to inform pilots of temporary lighting conditions.

Section 3. Other Construction Marking and Lighting Activities

3-7. OVERVIEW.

Ensure that construction areas, including closed runways, are clearly and visibly separated from movement areas and that hazards, facilities, cables, and power lines are identified prominently for construction contractors. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking and lighting aids remain in place and operational. Routine inspections must be made of temporary construction lighting, especially battery-powered lighting since weather conditions can limit battery life.

3-8. CLOSED RUNWAY AND TAXIWAY MARKING AND LIGHTING.

Closed runway markings consist of a yellow “X” in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*. A very effective and preferable visual aid to depict temporary closure is the lighted “X” signal placed on or near the runway designation numbers. This device is much more discernible to approaching aircraft than the other materials described. If the lighted “X” is not available, construct the marking of any of the following materials: double-layered painted snow fence, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and secured to prevent movement by prop wash, jet blast, or other wind currents. In addition, the airport operator may install barricades, traffic cones, activate stop bars, or other acceptable visual devices at major entrances to the runways to prevent aircraft from entering a closed portion of runway. The placement of even a single reflective barricade with a “do not enter” sign on a taxiway centerline can prevent an aircraft from continuing onto a closed runway. If the taxiway must remain open for aircraft crossings, barricades or markings, as described above or in paragraph 3-9, should be placed on the runway.

a. Permanently closed runways.

For runways and taxiways that have been permanently closed, disconnect the lighting circuits. For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place “X’s” at each end and at 1,000-foot (300-m) intervals. For taxiways, place an “X” at the entrance of the closed taxiway.

b. Temporarily closed runway and taxiways.

For runways that have been temporarily closed, place an “X” at the each end of the runway. With taxiways, place an “X” at the entrance of the closed taxiway.

c. Temporarily closed airport.

When the airport is closed temporarily, mark the runways as closed and turn off the airport beacon.

d. Permanently closed airports

When the airport is closed permanently, mark the runways as permanently closed, disconnect the airport beacon, and place an “X” in the segmented circle or at a central location if no segmented circle exists.

3-9. HAZARD MARKING AND LIGHTING.

Provide prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Using appropriate hazard marking and lighting may prevent damage, injury, traffic delays, and/or facility closures. Hazard marking and lighting must restrict access and make specific hazards obvious to pilots, vehicle drivers, and other personnel. Barricades, traffic cones (weighted or sturdily attached to the surface), or flashers are acceptable methods used to identify and define the limits of construction and hazardous areas on airports.

Provide temporary hazard marking and lighting to prevent aircraft from taxiing onto a closed runway for takeoff and to identify open manholes, small areas under repair, stockpiled material, and waste areas. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person’s information with the airport.

a. Nonmovement areas.

Indicate construction locations on nonmovement areas in which no part of an aircraft may enter by using barricades that are marked with diagonal, alternating orange and white stripes. Barricades may be supplemented with alternating

orange and white flags at least 20 by 20 inches (50 by 50 cm) square and made and installed so they are always in an extended position, properly oriented, and securely fastened to eliminate jet engine ingestion. Such barricades may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels. During reduced visibility or night hours, supplement the barricades with red lights, either flashing or steady-burning, which should meet the luminance requirements of the State Highway Department (yellow lights are not acceptable after October 1, 2004). The intensity of the lights and spacing for barricade flags and lights must adequately and without ambiguity delineate the hazardous area.

b. Movement areas.

Use orange traffic cones; red lights, either flashing or steady-burning, which should meet the luminance requirements of the State Highway Department (yellow lights are not acceptable after October 1, 2004); collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. All barricades, temporary markers, and other objects placed and left in safety areas associated with any open runway, taxiway, or taxilane must be as low as possible to the ground; of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, or other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inches (7.6cm) above the ground. Do not use nonfrangible hazard markings, such as concrete barriers and/or metal-drum-type barricades, in aircraft movement areas. Do not use railroad ties on runways.

Use highly reflective barriers with flashing or steady-burning red lights to barricade taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, we strongly recommend that, even for closures of relatively short duration, major taxiway/runway intersections be identified with barricades spaced no greater than 20 feet (6m) apart. Mark the barricades with a flashing or steady-burning red light. At a minimum, use a single barricade placed on the taxiway centerline.

3-10. CONSTRUCTION NEAR NAVIGATIONAL AIDS (NAVAIDS).

Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDS require special consideration since they may interfere with signals essential to air navigation. Evaluate the effect of construction activity and the required distance and direction from the NAVAID for each construction project. Pay particular attention to stockpiling material, as well as

to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction may require NAVAID shutdown or adjustment of instrument approach minimums for IFR. This condition requires that a NOTAM be filed. Construction activities and materials/equipment storage near a NAVAID may also obstruct access to the equipment and instruments for maintenance. Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, consult with the nearest FAA Airway Facilities Office.

3-11. CONSTRUCTION SITE ACCESS AND HAUL ROADS.

Determine the construction contractor's access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Construction contractors must submit specific proposed routes associated with construction activities to the airport operator for evaluation and approval as part of the safety plan before beginning construction activities. These proposed routes must also provide specifications to prevent inadvertent entry to movement areas. Pay special attention to ensure that ARFF right of way on access and haul roads is not impeded at any time and that construction traffic on haul roads does not interfere with NAVAIDS or approach surfaces of operational runways.

3-12. CONSTRUCTION MATERIAL STOCKPILING.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ of an operational runway. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. This includes determining and verifying that materials are stored at an approved location to prevent foreign object damage and attraction of wildlife.

3-13. OTHER LIMITATIONS ON CONSTRUCTION.

Contractors may not use open-flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use. Under no circumstances should flare pots be used within the AOA at any time. The use of electrical blasting caps must not be permitted on or within 1,000 feet (300m) of the airport property (see AC 150/5370-10, *Standards for Specifying Construction of Airports*).

3-14. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT.

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must

not leave or place FOD on or near active aircraft movement areas. Materials tracked onto these areas must be continuously removed during the construction project. We also recommend that airport operators and construction contractors carefully control and continuously remove waste or loose materials that might attract wildlife.

Section 4. Safety Hazards and Impacts

3-15. OVERVIEW.

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. Airport operators and contractors should consider the following when performing inspections of construction activity:

- a. Excavation adjacent to runways, taxiways, and aprons.
- b. Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxilane; in the related object-free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.
- c. Runway resurfacing projects resulting in lips exceeding 3 inches (7.6cm) from pavement edges and ends.
- d. Heavy equipment (stationary or mobile) operating or idle near AOA's, in runway approaches and departures areas, or in OFZ's.
- e. Equipment or material near NAVAIDS that may degrade or impair radiated signals and/or the monitoring of navigational and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.
- f. Tall and especially relatively low-visibility units (i.e., equipment with slim profiles)—cranes, drills, and similar objects—located in critical areas, such as OFZ's and approach zones.
- g. Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxilane or in a related safety, approach, or departure area.
- h. Obstacles, loose pavement, trash, and other debris on or near AOA's. Construction debris (gravel,

sand, mud, paving materials, etc.) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.

i. Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA's create aviation hazards.

j. Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA's create aviation hazards.

k. Wildlife attractants—such as trash (food scraps not collected from construction personnel activity), grass seeds, or ponded water—on or near airports.

l. Obliterated or faded markings on active operational areas.

m. Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.

n. Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction-related airport conditions.

o. Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway/taxiway lighting; loss of navigational, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.

p. Restrictions on ARFF access from fire stations to the runway-taxiway system or airport buildings.

q. Lack of radio communications with construction vehicles in airport movement areas.

r. Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport

that could be distracting, confusing, or alarming to pilots during aircraft operations.

s. Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.

t. Spillage from vehicles (gasoline, diesel fuel, oil, etc.) on active pavement areas, such as runways, taxiways, ramps, and airport roadways.

u. Failure to maintain drainage system integrity during construction (e.g., no temporary drainage provided when working on a drainage system).

v. Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.

w. Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.

x. Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.

y. Site burning, which can cause possible obscuration.

z. Construction work taking place outside of designated work areas and out of phase.

APPENDIX 1. RELATED READING MATERIAL

1. Obtain the latest version of the following free publications from the FAA on its Web site at <http://www.faa.gov/arp/>. In addition, these ACs are available by contacting the U.S. Department of Transportation, Subsequent Distribution Office, SVC-121.23, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785.

a. AC 150/5200-28, *Notices to Airmen (NOTAM) for Airport Operators*. Provides guidance for the use of the NOTAM System in airport reporting.

b. AC 150/5200-30, *Airport Winter Safety and Operations*. Provides guidance to airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.

c. AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*. Provides guidance on locating certain land uses having the potential to attract hazardous wildlife to public-use airports.

d. AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*. Provides guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.

e. AC 150/5220-4, *Water Supply Systems for Aircraft Fire and Rescue Protection*. Provides guidance for the selection of a water source and standards for the design of a distribution system to support aircraft rescue and fire fighting service operations on airports.

f. AC 150/5340-1, *Standards for Airport Markings*. Contains FAA standards for markings used on airport runways, taxiways, and aprons.

g. AC 150/5340-14B, *Economy Approach Lighting Aids*. Describes standards for the design, selection, siting, and maintenance of economy approach lighting aids.

h. AC 150/5340-18, *Standards for Airport Sign Systems*. Contains FAA standards for the siting and installation of signs on airport runways and taxiways.

i. AC 150/5345-28, *Precision Approach Path Indicator (PAPI) Systems*. Contains the FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.

j. AC 150/5380-5, *Debris Hazards at Civil Airports*. Discusses problems at airports, gives information on foreign objects, and explains how to eliminate such objects from operational areas.

k. AC 70/7460-2, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace*. Provides information to persons proposing to erect or alter an object that may affect navigable airspace and explains the need to notify the FAA before construction begins and the FAA's response to those notices, as required by 14 CFR part 77.

2. Obtain copies of the following publications from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Send a check or money order made payable to the Superintendent of Documents in the amount stated with your request. The Government Printing Office does not accept C.O.D. orders. In addition, the FAA makes these ACs available at no charge on the Web site at <http://www.faa.gov/arp/>.

a. AC 150/5300-13, *Airport Design*. Contains FAA standards and recommendations for airport design, establishes approach visibility minimums as an airport design parameter, and contains the object-free area and the obstacle free-zone criteria. (\$26. Supt. Docs.) SN050-007-01208-0.

b. AC 150/5370-10, *Standards for Specifying Construction of Airports*. Provides standards for construction of airports. Items covered include earthwork, drainage, paving, turfing, lighting, and incidental construction. (\$18. Supt. Docs.) SN050-007-0821-0.

APPENDIX 2. DEFINITIONS OF TERMS USED IN THE AC

1. AIR OPERATIONS AREA (AOA). Any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runways, taxiways, or aprons.

2. CONSTRUCTION. The presence and movement of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.

3. CERTIFICATED AIRPORT. An airport that has been issued an Airport Operating Certificate by the FAA under the authority of 14 CFR part 139, Certification and Operation: Land Airports Serving Certain Air Carriers, or its subsequent revisions.

4. FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION. The form submitted to the FAA Regional Air Traffic or Airports Division Office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR part 77, Objects Affecting Navigable Airspace (see AC 70/7460-2, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace*, found at <http://www.faa.gov/arp/>).

5. FAA FORM 7480-1, NOTICE OF LANDING AREA PROPOSAL. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport (found at <http://www.faa.gov/arp/>).

6. MOVEMENT AREA. The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and aircraft parking areas (reference 14 CFR part 139).

7. OBSTRUCTION. Any object/obstacle exceeding the obstruction standards specified by 14 CFR part 77, subpart C.

8. OBJECT-FREE AREA (OFA). An area on the ground centered on the runway, taxiway, or taxilane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes (see AC 150/5300-13, *Airport Design*, for additional guidance on OFA standards and wingtip clearance criteria).

9. OBSTACLE-FREE ZONE (OFZ). The airspace below 150 feet (45m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches (refer to AC 150/5300-13 for guidance on OFZs).

10. RUNWAY SAFETY AREA (RSA). A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13.

11. TAXIWAY SAFETY AREA. A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13.

12. THRESHOLD. The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.

13. DISPLACED THRESHOLD. The portion of pavement behind a displaced threshold that may be available for takeoffs in either direction or landing from the opposite direction.

14. VISUAL GLIDE SLOPE INDICATOR (VGSI). This device provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicators (PAPIs), visual approach slope indicators (VASIs), and pulse light approach slope indicators (PLASIs).

APPENDIX 3. AIRPORT CONSTRUCTION SAFETY PLANNING GUIDE

Aviation Safety Requirements During Construction

PURPOSE. *This appendix provides airport operators with boilerplate format and language for developing a safety plan for an airport construction project. Adapt this appendix, as applicable, to specific conditions found on the airport for which the plan is being developed. Consider including a copy of this safety plan in the construction drawings for easy access by contractor personnel. Plans should contain the following:*

1. GENERAL SAFETY REQUIREMENTS.

Throughout the construction project, the following safety and operational practices should be observed:

- Operational safety should be a standing agenda item during progress meetings throughout the construction project.
- The contractor and airport operator must perform onsite inspections throughout the project, with immediate remedy of any deficiencies, whether caused by negligence, oversight, or project scope change.
- Airport runways and taxiways should remain in use by aircraft to the maximum extent possible.
- Aircraft use of areas near the contractor's work should be controlled to minimize disturbance to the contractor's operation.
- Contractor, subcontractor, and supplier employees or any unauthorized persons must be restricted from entering an airport area that would be hazardous.
- Construction that is within the safety area of an active runway, taxiway, or apron that is performed under normal operational conditions must be performed when the runway, taxiway, or apron is closed or use-restricted and initiated only with prior permission from the airport operator.
- The contracting officer, airport operator, or other designated airport representative may order the contractor to suspend operations; move personnel, equipment, and materials to a safe location; and stand by until aircraft use is completed.

2. CONSTRUCTION MAINTENANCE AND FACILITIES MAINTENANCE.

Before beginning any construction activity, the contractor must, through the airport operator, give notice [using the

Notice to Airmen (NOTAM) System] of proposed location, time, and date of commencement of construction. Upon completion of work and return of all such areas to standard conditions, the contractor must, through the airport operator, verify the cancellation of all notices issued via the NOTAM System. Throughout the duration of the construction project, the contractor must—

- a. Be aware of and understand the safety problems and hazards described in AC 150/5370-2, *Operational Safety on Airports During Construction*.
- b. Conduct activities so as not to violate any safety standards contained in AC 150/5370-2 or any of the references therein.
- c. Inspect all construction and storage areas as often as necessary to be aware of conditions.
- d. Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.

3. APPROACH CLEARANCE TO RUNWAYS.

Runway thresholds must provide an unobstructed approach surface over equipment and materials. (Refer to Appendix 2 in AC 150/5300-13, *Airport Design*, for guidance in this area.)

4. RUNWAY AND TAXIWAY SAFETY AREA (RSA AND TSA).

Limit construction to outside of the approved RSA, as shown on the approved airport layout plan—unless the runway is closed or restricted to aircraft operations, requiring a lesser standard RSA that is equal to the RSA available during construction (see AC 150/5370-2 for exceptions). Construction activity within the TSA is permissible when the taxiway is open to aircraft traffic if adequate wingtip clearance exists between the aircraft and equipment/material; evacuations, trenches, or other conditions are conspicuously marked and lighted; and local NOTAMs are in effect for the activity (see AC 150/5300-13 for wingtip clearance requirements). The NOTAM should state that, “personnel and equipment are working adjacent to Taxiway_____.”

a. Procedures for protecting runway edges.

- Limit construction to no closer than 200 feet (60m) from the runway centerline—unless the runway is closed or restricted to aircraft operations, requiring a lesser standard RSA

- that is equal to the RSA available during construction.
- Prevent personnel, material, and/or equipment, as defined in AC 150/5300-13, Paragraph 306, "Obstacle Free Zone (OFZ)," from penetrating the OFZ.
- Coordinate construction activity with the Airport Traffic Control Tower (ATCT) and FAA Regional Airports Division Office or Airports District Office, and through the airport operator, issue an appropriate NOTAM.

Complete the following chart to determine the area that must be protected along the runway edges:

Runway	Aircraft Approach Category*	Airplane Design Group*	RSA Width in Feet Divided by 2*
	A, B, C, or D	I, II, III, or IV	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

*See AC 150/5300-13, *Airport Design*, to complete the chart for a specific runway.

b. Procedures for protecting runway ends.

- Maintain the RSA from the runway threshold to a point at least the distance from the runway threshold as existed before construction activity—unless the runway is closed or restricted to aircraft operations, requiring an RSA that is equal to the RSA length available during construction in accordance with AC 150/5300-13. This may involve the use of declared distances and partial runway closures (see AC 150/5370-2 for exceptions).
- Ensure all personnel, materials, and/or equipment are clear of the applicable threshold siting criteria surface, as defined in Appendix 2, "Threshold Siting Requirements," of AC 150/5300-13.
- Prevent personnel, material, and/or equipment, as defined in AC 150/5300-13, from penetrating the obstacle-free zone.
- Ensure adequate distance for blast protection is provided, as needed.
- Coordinate construction activity with the ATCT and FAA Regional Airports Division Office or Airports District Office, and through the airport operator, issue an appropriate NOTAM.
- Provide a drawing showing the profile of the appropriate surfaces of each runway end where construction will take place. Where operations by turbojet aircraft are anticipated, review takeoff procedures and jet blast characteristics of aircraft and incorporate safety measures for construction workers in the contract documents.

Complete the following chart to determine the area that must be protected before the runway threshold:

Runway End Number	Airplane Design Group* I, II, III, or IV	Aircraft Approach Category* A, B, C, or D	Minimum Safety Area Prior to the Threshold*	Minimum Unobstructed Approach Slope
_____	_____	_____	_____: FEET	____: 1 to (threshold)
_____	_____	_____	_____: FEET	____: 1 to (threshold)
_____	_____	_____	_____: FEET	____: 1 to (threshold)
_____	_____	_____	_____: FEET	____: 1 to (threshold)

*See AC 150/5300-13, *Airport Design*, to complete the chart for a specific runway.

5. MARKING AND LIGHTING FOR TEMPORARY THRESHOLDS.

Marking and lighting for a temporary threshold is ____/is not ____ required. The airport owner or contractor, as specified in the contract, will furnish and maintain markings for temporary thresholds. Precision approach path indicators (PAPIs) or runway end identification lights (REIL) are ____/are not ____ required. The airport owner or contractor, as specified in the contract, will furnish and install all temporary lighting. Include appropriate items per AC 150/5370-2, Chapter 3, "Safety Standards and Guidelines." *If marking and lighting for the temporary threshold is not required, delete this section of the safety plan. If visual aids and/or markings are necessary, provide details. (Include applicable 14 CFR part 77 surfaces in the contract documents.)*

6. CLOSED RUNWAY MARKINGS AND LIGHTING.

The following must be specified for closed runways. Closed runway marking are ____/are not ____ required. Closed runway markings will be as shown on the plans ____/as furnished by the airport owner ____/other ____ (specify). Barricades, flagging, and flashers are ____/are not ____ required at Taxiway ____ and Runway ____ and will be supplied by the airport ____/other ____ (specify).

7. HAZARDOUS AREA MARKING AND LIGHTING.

Hazardous areas on the movement area will be marked with barricades, traffic cones, flags, or flashers (specify). These markings restrict access and make hazards obvious to aircraft, personnel, and vehicles. During periods of low visibility and at night, identify hazardous areas with red flashing or steady-burning lights (specify). The hazardous area marking and lighting will be supplied by

the airport operator/contractor, as specified in the contract, and will be depicted on the plans.

8. TEMPORARY LIGHTING AND MARKING.

Airport markings, lighting, and/or signs will be altered in the following manner (specify) during the period from ____ to _____. The alterations are depicted on the plans.

9. VEHICLE OPERATION MARKING AND CONTROL.

Include the following provisions in the construction contract, and address them in the safety plans:

a. When any vehicle, other than one that has prior approval from the airport operator, must travel over any portion of an aircraft movement area, it will be escorted and properly identified. To operate in those areas during daylight hours, the vehicle must have a flag or beacon attached to it. Any vehicle operating on the movement areas during hours of darkness or reduced visibility must be equipped with a flashing dome-type light, the color of which is in accordance with local or state codes.

b. It may be desirable to clearly identify the vehicles for control purposes by either assigned initials or numbers that are prominently displayed on each side of the vehicle. The identification symbols should be at minimum 8-inch (20-cm) block-type characters of a contrasting color and easy to read. They may be applied either by using tape or a water-soluble paint to facilitate removal. Magnetic signs are also acceptable. In addition, vehicles must display identification media, as specified in the approved security plan. *(This section should be revised to conform to the airport operator's requirements.)*

c. Employee parking shall be _____ (specify location), as designated by the airport manager _____/project engineer _____/other _____ (specify).

d. Access to the job site shall be via _____ (specify route), as shown on the plans _____/designated by the engineer _____/designated by the superintendent _____/designated by the airport manager _____/other _____ (specify).

e. At 14 CFR part 139 certificated and towered airports, all vehicle operators having access to the movement area must be familiar with airport procedures for the operation of ground vehicles and the consequences of noncompliance.

f. If the airport is certificated and/or has a security plan, the airport operator should check for guidance on the additional identification and control of construction equipment.

10. NAVIGATIONAL AIDS.

The contractor must not conduct any construction activity within navigational aid restricted areas without prior approval from the local FAA Airway Facilities sector representative. Navigational aids include instrument landing system components and very high-frequency omnidirectional range, airport surveillance radar. Such restricted areas are depicted on construction plans.

11. LIMITATIONS ON CONSTRUCTION.

Additional limitations on construction include—

a. Prohibiting open-flame welding or torch cutting operations unless adequate fire safety precautions are provided and these operations have been authorized by the airport operator *(as tailored to conform to local requirements and restrictions)*.

b. Prominently marking open trenches, excavations, and stockpiled materials at the construction and lighting these obstacles during hours of restricted visibility and darkness.

c. Marking and lighting closed, deceptive, and hazardous areas on airports, as appropriate.

d. Constraining stockpiled material to prevent its movement as a result of the maximum anticipated aircraft blast and forecast wind conditions.

12. RADIO COMMUNICATIONS.

Vehicular traffic located in or crossing an active movement area must have a working two-way radio in contact with the control tower or be escorted by a person in radio contact with the tower. The driver, through personal observation, should confirm that no aircraft is approaching the vehicle position. Construction personnel may operate in a movement area without two-way radio communication provided a NOTAM is issued closing the area and the area is properly marked to prevent incursions. Two-way radio communications are _____/are not _____ required between contractors and the Airport Traffic Control Tower _____/FAA Flight Service Station _____/Airport Aeronautical Advisory Stations (UNICOM/CTAF) _____. Radio contact is _____/is not _____ required between the hours of _____ and _____. Continuous monitoring is required _____/or is required only when equipment movement is necessary in certain areas _____. *(This section may be tailored to suit the specific vehicle and safety requirements of the airport sponsor.)*

13. DEBRIS.

Waste and loose material must not be placed in active movement areas. Materials tracked onto these areas must be removed continuously during the work project.

APPENDIX 4. SAMPLE NOTAM

_____ AIRPORT

FAA NOTAM # _____

DATE: _____

AIRPORT I.D. # _____

TIME: _____

NOTAM TEXT:**NOTIFICATION:**

#### TOWER	_____	_____	_____	_____
	PHONE #	INITIALS	TIME	CALLED IN BY

#### FSS	_____	_____	_____	_____
	PHONE #	INITIALS	TIME	CALLED IN BY

AIRLINES

_____	_____
_____	_____
_____	_____

CANCELLED:**NOTIFICATION:**

#### TOWER	_____	_____	_____	_____
	PHONE #	INITIALS	TIME	CALLED IN BY

#### FSS	_____	_____	_____	_____
	PHONE #	INITIALS	TIME	CALLED IN BY

AIRLINES

_____	_____
_____	_____
_____	_____



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: QUALITY CONTROL OF
CONSTRUCTION FOR AIRPORT GRANT
PROJECTS

Date: 9/29/07
Initiated by: AAS-100

AC No.: 150/5370-12A
Change:

1. PURPOSE. This advisory circular (AC) provides information to ensure the quality of construction accomplished under the Federal Aviation Administration's (FAA) Airport Improvement Program (AIP).

2. BACKGROUND. The FAA has the responsibility of determining whether all construction work accomplished under the AIP is in accordance with the contract documents. A report issued by the Office of the Inspector General indicated that, in some instances, work performed was not accomplished in compliance with plans and specifications. In addition, quantities of materials used were not properly measured and documented and testing or quality assurance procedures were inadequate.

3. CANCELLATION. This AC cancels AC 150/5370-12, *Quality Control of Construction for Airport Grant Projects*, dated September 6, 1985.

4. APPLICATION. The FAA recommends the guidelines and standards in this AC for airport construction projects. This AC does not constitute a regulation and in general is not mandatory. However, use of these guidelines is mandatory for construction projects funded under the Airport Improvement Program (AIP). Mandatory terms such as "must" apply only to those who undertake construction projects using AIP funds. For such projects, the sponsor, the sponsor's engineer, and the FAA project manager must assume the responsibilities outlined in the following paragraphs to ensure the materials and workmanship incorporated into a project are in conformity with the requirements of the approved or certified plans and specifications.

5. SPONSOR'S RESPONSIBILITIES. The sponsor is responsible for all project engineering, including the preparation of plans and specifications, construction supervision, and inspection and testing for acceptability and quality. If the sponsor does not have the staff or the expertise to perform these services, then the sponsor should retain a consulting engineering firm. The consultant represents the sponsor and has overall responsibility for reporting on the acceptability and quality of the work. The relations of the consultant with the sponsor must be clearly defined by a written agreement before the start of work.

a. Engineering Services. AC 150/5100-14, *Architectural, Engineering, and Planning Consultant Services for Airport Grant Projects*, identifies items that should be included in a contract for engineering services. In some cases, the sponsor may retain an independent firm to perform testing for project control. It is, therefore, extremely important that the contract clearly delineate the division of responsibility and authority between the sponsor, the consultant, and the testing firm. For example, the agreement should define the party responsible for designating the location and number of tests, for interpreting test results, and for follow-up procedures for failing test results.

b. Predesign and Preconstruction Conferences. Predesign and preconstruction conferences conducted by the sponsor should be held to discuss various items, including testing and quality control. AC 150/5300-9, *Predesign, Prebid, and Preconstruction Conferences for Airport Grant Projects*, provides guidance for conducting such conferences.

c. Supervision and Inspection. The sponsor must provide adequate and qualified engineering supervision and construction inspection during all stages of the work. The FAA may request the sponsor to furnish

a written assurance that it has reviewed the qualifications of personnel who will be performing these functions and that they are qualified to do so.

6. ENGINEER's RESPONSIBILITIES. The basic services normally required for airport development projects are the preliminary phase, design phase, bidding phase, and construction phase. The design and construction phases are directly related to quality of construction. AC 150/5100-14 contains a listing of activities normally performed during these phases.

a. Design Phase. The design phase includes all activities required to accomplish a complete project design, including development of plans and specifications. The standards contained in AC 150/5370-10, *Standards for Specifying Construction of Airports*, current edition, relate to materials and methods used in the construction of airports and must be used for projects funded under the FAA's AIP. Although these specifications reflect acceptable standards, practices, and techniques in airport construction, they are general in scope. For contract purposes, the various permissible options with regard to local materials, methods, and testing must be defined in the contract documents. In particular, the minimum testing frequency for job control must be specified in the project specifications.

b. Construction Phase. The construction phase includes all activities required after the award of a construction contract. The basic services of an engineering agreement normally include periodic inspection of the work in progress but not the services of a full-time resident engineer or inspector. Full-time inspection may be provided by the sponsor or by the consulting engineer under a supplemental agreement. In some instances, the sponsor may negotiate a separate agreement for services to be provided during this phase.

(1) **Resident Engineer or Inspector.** The resident engineer or inspector must have field experience in the type of work to be performed; be fully qualified to make interpretations, decisions, field computations, etc.; and have knowledge of testing requirements and procedures. The resident engineer or inspector must have the authority to reject both unsatisfactory workmanship and materials. Primary duties are as follows:

(i) Checks activities to ensure compliance with the plans and specifications. Informs the contractor of any work that is in noncompliance.

(ii) Ensures that all testing required by the specification is performed. All commercially produced products, such as pipe and reinforcing steel, that are used on the project should be accompanied by numerical test results or a certification from the manufacturer that the material meets the applicable standards.

(iii) Visits the testing laboratory to determine if it has the equipment and qualified personnel necessary to conduct the tests required by the specifications.

(iv) Ensures that tests are performed at the frequency stated in the specifications. Determine when and where tests will be taken and witness tests. If not indicated in the specifications, a sufficient number of tests should be taken to verify that the construction is acceptable.

(v) Reviews test reports and certifications for conformance with the specifications. Each test report for material in-place should, at a minimum, contain the following:

(a) Test performed and date.

(b) Applicable standard or project specification.

(c) Test location.

(d) Test result.

(e) Action taken on failing tests.

(f) Lot size and location and adjusted contract price when statistical acceptance procedures are specified or when provisions allow for reduced payment.

(vi) Maintains a file of test reports and certifications.

(vii) Informs the contractor of deficiencies so corrections can be made and retesting performed prior to covering any substandard work with additional material.

(viii) Documents quantities of materials used on the project by actual measurements and computations in a field notebook or computer printouts retained in a folder. For materials paid for on a weight basis, a summary of the material placed each day should be kept in the field notebook. The notebook and/or computer printouts, supported by the original set of weigh tickets, is the basis for payment.

(ix) Maintains a set of working drawings on the job site that can be used to prepare “as-built” drawings.

(x) Reviews payment requests from the contractor.

(xi) Maintains a diary that should contain daily entries made and signed by the resident engineer. Each entry should include the following, plus any additional pertinent data:

(a) Date and weather conditions.

(b) Names of important visitors.

(c) Construction work in progress and location.

(d) Size of contractor’s work force and equipment in use.

(e) Number of hours worked per day for contractor and subcontractors.

(f) The substance of important conversations with the contractor about conduct, progress, changes, test results, interpretations of specifications, or other details.

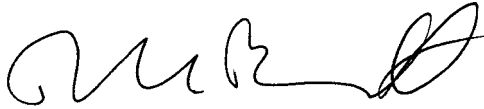
(xii) Submits copies of FAA Form 5370-1, *Construction Progress and Inspection Report*, or equivalent form to the appropriate FAA Airports Division/District/Field Office upon request.

7. FAA PROJECT MANAGER’S RESPONSIBILITIES. The FAA project manager has the responsibility to monitor the project to ensure the terms and conditions of the grant agreement are met, to maintain a broad overview of the construction to be reasonably certain the work is accomplished in accordance with the plans and specifications, and to evaluate the adequacy of the sponsor’s construction inspection. FAA project oversight does not relieve the sponsor’s responsibility of ensuring adequate supervision and inspection during all stages of the work and ensuring the work is in conformance with the plans and specifications.

8. COMMENTS OR SUGGESTIONS. Comments or suggestions for improving this AC should be sent to—

Manager, Airport Engineering Division
Federal Aviation Administration
ATTN: AAS-100
800 Independence Avenue, SW
Washington, DC 20591

9. COPIES OF THIS AC. The Office of Airport Safety and Standards is in the process of making ACs available to the public through the Internet. These ACs can be found on the Federal Aviation Administration (FAA) website at http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/.

A handwritten signature in black ink, appearing to read 'DLB', with a stylized flourish at the end.

David L. Bennett
Director of Airport Safety and Standards

SPECIAL CONDITIONS

SECTION 1

PROJECT INFORMATION

1. CONTRACT PROVISIONS. The General Provisions and these Special Conditions are applicable to all divisions and sections of the Contract Documents and Specifications. It shall be the Contractor's responsibility to so inform all parties who should be bound or influenced thereby.

In the event there are discrepancies between the technical specifications, general provisions, general conditions and the special conditions, the interpretation most advantageous to the Owner shall apply.

2. DESCRIPTION OF WORK. The proposed Work includes the following: (see Construction Plans)

3. LOCATION OF THE WORK. The site of the proposed Work is at Duluth International Airport, Duluth, MN.

4. DEFINITIONS. The following terms when used in the Contract Documents shall mean the following:

A. ADDENDA. Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents or the Contract Documents.

B. BID. The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work and services to be performed.

C. DAY. Unless otherwise defined shall mean "calendar" day.

D. DRAWINGS. The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by the Engineer and are referred to in the Contract Documents.

E. ENGINEER. The term "Engineer" in the Contract Documents means Reynolds, Smith and Hills, Inc., 4525 Airport Approach Road, Duluth, MN 55811.

F. FIELD ORDER. A written order issued by the Engineer which orders minor changes in the Work consistent with the intent of the Contract Documents but which does not involve a change in the Contract Price or the Contract Time.

The Engineer may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and shall be binding on Owner, and also on Contractor who shall perform the change promptly. If Contractor believes that a Field Order justifies an increase in the Contract Price or Contract Time, Contractor shall make a claim under Section 50, Subsection 50-16, Claims for Adjustment and Disputes of the General Provisions before doing the Work.

G. FURNISH or INSTALL or PROVIDE or SUPPLY. Unless specifically limited in the context, the word "Furnish" or the word "Install" or the word "Provide" or the word "Supply" or any combination or similar directive or usage thereof, shall mean FURNISHING AND INCORPORATION IN THE WORK including all necessary labor, materials, equipment, and anything necessary to perform the Work indicated.

H. GOOD REPAIR. Good repair shall be construed to mean any defect, functional or structural deterioration (except that from ordinary and reasonable use) which appreciably reduces the effectiveness or efficiency of the Work or improvement for the purpose intended, or any serious departure from the standards of original construction described in the Contract Documents, shall be remedied by the Contractor. Such remedy will be made without further cost to the Owner, including in part, all damages caused by such defect, deficiency, deterioration or departure, and by its repair, replacement or correction.

I. MAY. Permissive.

J. REFERENCE TO TRADE OR SUBCONTRACTORS. When only one principal contract exists for all Work covered by the Contract Documents, reference to trade or subcontractors in the Contract Documents shall not create any contractual relationship between the Owner and any trade or subcontractor, with whom the principal contractor may subcontract.

K. SAMPLES. Samples are physical examples furnished or constructed by the Contractor to illustrate materials, equipment, workmanship or finishes, and to establish standards by which the Work will be judged.

L. "SHALL" IMPLIED. In the interest of conciseness, some sentences, statements, and clauses used in the specifications exclude any form of the verb "shall" normally expressed in a verb phrase with verbs such as "furnish", "install", "provide", "perform", "construct", "erect", "comply", "apply", "submit", or similar "verb", but any such sentences, statements, and clauses shall be interpreted to include the applicable form of the phrase "The Contractor shall" and the requirements described therein shall be interpreted as mandatory elements of the Contract.

M. SHALL. Mandatory.

N. SUBCONTRACTOR. Party supplying labor and material or any labor for work at the site of the project for, and under separate contract or agreement with the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner and any Subcontractor.

O. SUBSTANTIAL COMPLETION. When the Work is sufficiently complete so it may be safely, conveniently and beneficially utilized by the Owner for all of the purposes for which it was intended.

P. WILL. Mandatory.

5. APPLICABLE DRAWINGS. The drawings applicable to this project are listed in the Index of Drawings as included herein in General Provisions, Section 10.

6. PROPOSAL REQUIREMENTS. In addition to those herein before described items to be submitted with the Bidder's Proposal, the Bidder shall submit, with his Proposal, a list of all Subcontractors the Bidder proposes to use on the Work of this Contract.

After the Owner accepts the Bidder's Proposal and such Bidder is awarded a Contract, the successful Bidder may not substitute a Subcontractor listed in the Proposal without the prior written approval of the Owner. Such approval shall be obtained at least ten Calendar Days prior to the date scheduled for that Subcontractor to begin Work.

7. CONTRACTOR'S LIABILITY INSURANCE.

(Refer to City of Duluth Insurance Requirements)

8. ACCESS TO THE WORK. Access to the Work shall be via the access routes designated on the Contract Drawings. The Contractor shall identify access routes with suitable signs, barricades and similar equipment. The entire access route and construction site shall be kept free and clean of all debris at all times and maintained in good repair by the Contractor. All damage to the access route caused by the actions of the Contractor or his agents shall be immediately repaired to the satisfaction of the Owner.

No separate payment will be made for complying with the requirements of this paragraph "ACCESS TO THE WORK." No other access to the Work site will be permitted without written approval by the Owner and Engineer. Contractor's vehicles and equipment, including vehicles and equipment of the Subcontractors and others coming under the Contractor's control, will not be permitted to traverse other airfield areas or pavements without written approval of the Owner and Engineer. Contractor's vehicles, equipment and materials may be stored in the area designated on the Plans. Upon completion of the Work, the storage area shall be cleaned up and returned to its original condition to the satisfaction of the Owner. No separate payment will be made for cleanup and restoration of the storage area. Personal services, such as canteen trucks, will not be permitted beyond this area and drivers of vehicles being operated beyond this area shall be subject to loss of permission to enter the construction site.

9. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

A. Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

B. Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams or other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.

C. Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

D. The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the Work or in the Work of the Owner or any separate Contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents.

E. By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

F. The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Engineer's approval of Shop Drawings, Product Data or Samples unless the Contractor has specifically informed the Engineer in writing of such deviation at the time of submission and the Engineer has given written approval of the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Engineer's approval thereof.

G. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples to revisions other than those requested by the Engineer on previous submittals.

H. No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittals have been approved by the Engineer as provided in the General Provisions, Section 50. All such portions of the Work shall be in accordance with approved submittals.

I. The Contractor shall not reproduce the Engineer's project drawings for Shop Drawing use without prior written approval of the Engineer.

J. The Contractor shall submit six copies, or at Engineer's option, one reproducible copy and one print of all Shop Drawings required for the Work of the various trades unless greater quantities are specifically requested for certain equipment. Of these, three copies, or the reproducible copy, will be annotated as appropriate and returned to the Contractor with appropriate action indicated. By agreement with the Engineer, the Contractor may submit more than the required number of copies. Receipt of less than the required number of copies will be cause for withholding the Shop Drawings from being checked until receipt of the necessary additional copies. Shop Drawings shall be forwarded to Reynolds, Smith and Hills, Inc., 4525 Airport Approach Road, Duluth, MN 55811. The Contractor's letter of submittal must conform to the typical Contractor's "Transmittal Letter" which is available from the Engineer. The quantity of transmittal letters to be submitted shall be equal to the number of sets of drawings or brochures being submitted plus one. Each drawing or part of the brochure shall be listed separately on the letter and identified as indicated thereon. Failure to do this will cause rejection of the submittal. The Engineer will return to the Contractor the same transmittal letter, with the Shop Drawing disposition noted thereon along with the drawings or brochures when the review is completed. The Contractor shall forward separate transmittal letters for submitting each group of Shop Drawings common to a Specification Section.

K. In checking Shop Drawings prior to submittal, the Contractor is requested to note corrections or comments on the drawings in green pen.

L. Drawings returned to the Contractor will be stamped "Approved," "Approved as Noted," "Returned for Corrections," or "Not Approved." Drawings stamped "Approved as Noted" need not be returned for further approval if the notations are acceptable to the Contractor and Subcontractors. Drawings stamped "Returned for Corrections" or "Not Approved" shall require new submission. Comments and corrections by the Engineer will be made in red pen on blue or black line prints.

M. Samples shall be submitted to the Project Engineer, accompanied with the same transmittal letter prescribed for Shop Drawings. Checking by Contractor of samples before transmittal is required the same as for Shop Drawings.

10. PROJECT DOCUMENTATION.

A. Project Drawings: The successful Contractor will be furnished, at no charge, one (1) copy of drawings and Specifications and one (1) disc of drawings and Specifications. Additional copies may be purchased at actual cost of reproduction.

A field set of Plans and Specifications shall remain on the job site at all times and shall be available at all times to the Engineer.

The Contractor shall immediately include plainly and conspicuously on the field set of drawings, and at appropriate paragraphs in the specifications, all changes or corrections made by addenda, field orders and Change Orders as they are issued.

Approved copies of all shop drawings and other submittals are to be kept on the job site at all times and shall be available at all times to the Engineer.

Changes and deviations from the existing conditions shall be submitted in writing for approval prior to installation. In no case shall any unspecified equipment or materials be installed without prior approval by the Engineer.

B. Record Documents:

(1) Definition: Record documents are defined to include those documents or copies

relating directly to performance of the Work, which Contractor is required to prepare or maintain for Owner's records, recording the Work as actually performed. In particular, record documents show changes in the Work in relation to the way in which shown and specified by original Contract Documents; and show additional information of value to Owner's records, but not indicated by original Contract Documents. Record documents include newly prepared drawings (if any are specified), marked-up copies of Contract drawings, shop drawings, Specifications, addenda, field orders, Change Orders, marked-up product data submittals, record samples, field records for variable and concealed conditions such as excavations and foundations, and miscellaneous record information on Work which is otherwise recorded only schematically or not at all.

(2) Record Drawings: Contractor shall maintain a set of record drawings at the job site. The record drawings shall be kept legible and current and shall be available for inspection at all times by the Engineer. The Contractor shall show all changes or Work added on these record drawings in a contrasting color.

(a) Mark-Up Procedure: During progress of the Work, maintain a blue-line or black-line set of Contract drawings and shop drawings, with mark-up of actual installations which vary substantially from the Work as originally shown. Mark whatever drawing is most capable of showing actual physical condition, fully and accurately. Where shop drawings are marked up, mark cross-reference on Contract drawings at corresponding location. Mark with erasable colored pencil, using separate colors where feasible to distinguish between changes for different categories of Work at same general location. Mark-up important additional information which was either shown schematically or omitted from original drawings. Give particular attention to information on Work concealed, which would be difficult to identify or measure and record at a later date. Note alternate numbers, Field Orders or Change Order numbers and similar identification. Require each person preparing mark-ups to initial and date mark-ups and indicate name of firm. Label each sheet "PROJECT RECORD" in 1-1/2-inch high letters.

In showing changes in the Work, use the same legends as used on the original drawings. Indicate exact locations by dimensions and exact elevations by job datum. Give dimensions from a permanent point.

(b) Preparation of Transparencies: In preparation for Certification of Substantial Completion on last major portion of the Work, review completed mark-up of record drawings and shop drawings with Engineer. Engineer will then proceed with preparation of a full set of corrected transparencies for Contract drawings. Engineer will date each updated drawing and label each sheet "RECORD DRAWING" in 1-1/2-inch high letters. Printing as required herein is the responsibility of the Engineer.

(c) Copies, Distribution: Upon completion of transparency record drawings, Engineer shall prepare three blue-line or black-line prints of each drawing, regardless of whether changes and additional information were recorded thereon. Engineer shall then organize each of three copies into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates. Mark-up set of prints maintained during the construction period shall be bound in the same manner. Engineer shall also organize transparencies into sets matching print sets, place set in a durable tube-type drawing container (with end caps) and mark end cap of each with suitable identification. Engineer will retain one copy set. At completion of project, Engineer shall submit one set of transparencies, with changes noted thereon, to the Owner.

(3) Record drawings shall contain the names, addresses and phone numbers of the general Contractor and major Subcontractors.

(4) The Engineer shall be the sole judge of the acceptability of the record drawings. Receipt and acceptance of the record drawings is a prerequisite for Final Payment.

C. Record Specifications:

(1) During the progress of the Work, the Contractor shall maintain one copy of Specifications, including addenda, Change Orders and similar modifications issued in printed form during construction, mark-

up variations (of substance) in actual Work in comparison with text of Specifications and modifications as issued at the jobsite. Give particular attention to substitutions, selection of options, and similar information on Work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to Engineer for Owner's records. Label front cover "PROJECT RECORD" in 1-1/2-inch high letters.

(2) Where the record specifications is printed on one side of page only, mark variation on blank left-hand pages of the record specifications, facing printed right-hand pages containing original text affected by variation.

D. Record Product Data: During progress of the Work, maintain one copy of each product data submittal, and mark-up significant variations in the actual Work in comparison with submitted information. Include both variations in product as delivered to site, and variations from manufacturer's instructions and recommendations for installation. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned at a later date by direct observation. Note related Field Orders and Change Orders and mark-up of record drawings and specifications. Upon completion of mark-up, submit complete set of product data submittal to Engineer for Owner's records. Label each data submittal "PROJECT RECORD" in 1-1/2-inch high letters.

E. Record Sample Submittal: Immediately prior to date(s) of Substantial Completion, Engineer and Owner's personnel will meet with the Contractor at the work site and will determine if any of the submitted samples maintained by the Contractor during progress of the Work are to be transmitted to the Owner for record purposes. Comply with Engineer's instructions for packaging, identification marking and delivery to Owner's sample storage space. Dispose of other samples in a legal manner specified for disposal of surplus and waste materials, unless otherwise indicated by Engineer.

F. Miscellaneous Record Submittals: Refer to other sections of these Specifications for requirements of miscellaneous recordkeeping and submittals in connection with actual performance of the Work. Immediately prior to date(s) of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Engineer for Owner's records. Categories of requirements resulting in miscellaneous Work records are recognized to include, but not be limited to, the following:

(1) Required field records on excavations, foundations underground construction, wells and similar Work.

(2) Accurate survey showing locations and elevations of underground lines, including invert elevations of drainage piping, valves, tanks and manholes.

(3) Surveys establishing lines and levels of buildings, where applicable.

(4) Soil treatment certification.

(5) Inspection and Test Reports: Where not processed as shop drawings or product data.

(6) Concrete mix design record.

(7) Asphaltic concrete mix design record.

(8) Concrete block certification, where applicable.

G. Project Closeout: Closeout is hereby defined to include general requirements near end of Contract time, in preparation for Final Acceptance, Final Payment, normal termination of Contract, occupancy by Owner and similar actions evidencing completion of the Work. Specific requirements for individual units or Work are specified in other sections. Time of closeout is directly related to Substantial Completion, and

therefore may be a single-time period for entire Work or a series of time periods for individual parts of the Work which have been certified as Substantially Complete at different dates. The time variation, if any, shall be applicable to other provisions of this section.

H. Prerequisites to Substantial Completion:

(1) Prior to requesting the Engineer's inspection for Certification of Substantial Completion, for either entire Work or portions thereof, complete the following and list no exceptions in request.

(a) In progress payment request coincident with, or first following date claimed, show 100 percent completion for portion of Work claimed as "Substantially Completed," or list incomplete items, value of incompleteness and reasons for being incomplete.

(b) Include supporting documentation for completion as indicated in the Contract Documents.

(c) Submit statement showing accounting of changes to the Contract sum.

(d) Advise Owner of pending insurance change-over requirements.

(e) Obtain and submit releases enabling Owner's full and unrestricted use of the Work and access to services and utilities, including, where required, occupancy permits, operating certificates and similar releases.

(f) Deliver tools, spare parts, extra stocks of materials and similar physical items to Owner.

(g) Make final change-over of locks and transmit keys, where applicable, to Owner, and advise Owner's personnel of change-over in security provisions.

(h) Complete start-up testing of systems, and instructions of Owner's operating-maintenance personnel. Discontinue, or change over, and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.

(2) Inspection Procedures: Upon receipt of Contractor's request, Engineer will proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Engineer will prepare Certificate of Substantial Completion or advise Contractor of Work which must be performed prior to issuance of certificate and repeat inspection when requested and assured that Work has been substantially completed. Results of completed inspection will form initial "punch list" for Final Acceptance.

I. Prerequisites to Final Acceptance:

(1) Prior to requesting Engineers' final inspection for Certification of Final Acceptance as required by the General Provisions, complete the following and list known exceptions in request:

(a) Submit certified copy of Engineer's final punch list of itemized Work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Engineer.

(b) Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of Substantial Completion or when Owner took possession of and responsibility for corresponding elements of the Work.

(c) Complete final cleaning up requirements, including touch-up of marred surfaces.

(d) Touch-up and otherwise repair and restore marred exposed finishes.

(2) Reinspection Procedures: Following Substantial Completion, the Contractor shall correct or remedy all punch list items to the satisfaction of the Engineer and Owner within a two (2)-week period after the date of Substantial Completion. If subsequent inspections are necessary after the two-week period in order to eliminate all deficiencies, the cost of all subsequent inspections with respect to the Owner's and Engineer's time shall be paid by the Contractor. When ready, the Contractor shall request in writing, a final inspection of the Work. Upon completion of reinspection, the Engineer will prepare Certificate of Final Acceptance or advise Contractor of Work not completed or obligations not fulfilled as required for Final Acceptance. If necessary, procedures will be repeated.

J. Prerequisites to Final Payment:

(1) Final Payment: Final Payment will be made after Final Acceptance of the project by the Engineer and Owner upon request by the Contractor on condition that the Contractor:

(a) Furnish properly executed complete release of lien from all material men and Subcontractors who have furnished materials or labor for the Work and submit supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

(b) Furnish Contractor's Affidavit of Release of Liens (2 copies) that all material, men, and Subcontractors have been paid in full. In the event they have not been paid in full, the Owner shall retain a sufficient sum to pay them in full and at his option, may make direct payment to obtain complete releases of lien.

(c) Furnish Contractor's Final Release of Lien (2 copies).

(d) Furnish required sets of record drawings and maintenance and operating instructions of new mechanical equipment.

(e) Furnish guarantees signed by Subcontractors, material suppliers and countersigned by the Contractor for operating equipment.

(f) Submit specific warranties, workmanship-maintenance bonds, maintenance agreements, final certifications and similar documents.

(g) Furnish a signed guarantee, in form acceptable to Engineer and Owner agreeing to repair or replace as decided by the Engineer, all Work and materials that prove defective within one (1) year from the date of Final Acceptance, including restoration of all other Work damaged in making such repairs or replacements.

(h) Furnish consent of Surety to Final Payment.

(i) Submit final progress payment application, reflecting all final changes to Contract quantities and sums.

(j) Submit evidence of final, continuing insurance coverage complying with insurance requirements.

(k) Certify that all social security, employment and all other taxes (city, state, federal government) have been paid.

(l) Provide receipt, as applicable, of affidavits certifying all labor standards of local, state or federal requirements have been complied with by the Contractor.

(m) Submit actual DBE participation percentages.

K. Record Document Submittals: Specific requirements for record documents are shown in Section 10, PROJECT DOCUMENTATION. Other requirements are indicated in the General Provisions. General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.

(1) Record Drawings: Engineer shall organize record drawing sheets into manageable sets, bind with durable paper cover sheets and print suitable titles, dates and other identification on cover of each set.

(2) Record Specifications: Upon completion of mark-up, submit to Engineer for Owner's records.

(3) Record Product Data: Upon completion of mark-up, submit complete set to Engineer for Owner's records.

(4) Record Sample Submittal: Comply with Engineer's instructions for packaging, identification marking and delivery to Owner's sample storage space.

(5) Miscellaneous Record Submittals: Complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Engineer for Owner's records.

(6) Maintenance Manuals: Complete, place in order, properly identify and submit to Engineer for Owner's records.

L. Closeout Procedures: General Operating and Maintenance Instructions: Arrange for each installer or Work requiring continuing maintenance or operation to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire Work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuel, identification system, control sequences; hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy, efficiency adjustments and similar operations. Review maintenance and operations in relation with application warranties, agreements to maintain bonds, and similar continuing commitments.

11. FINAL CLEANING.

A. Provide final cleaning of the Work, at time indicated, consisting of cleaning each surface or unit of Work to normal "clean" condition.

B. Removal of Protection: Remove temporary protection devices and facilities which were installed during course of the Work to protect previous completed Work during remainder of construction period.

C. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

Where extra materials of value remaining after completion of associated Work have become Owner's property, dispose of these as directed by the Owner.

12. CONTRACT DOCUMENTS REVISION/MODIFICATIONS.

Where portions of text have been lined through (~~example~~) this text has been deleted and does not apply to this project. Where portions of text have been added with shading (example), this text has been added and is binding to this project. This process is utilized throughout the specifications and contract documents (excluding the plans).

END OF SPECIAL CONDITIONS - SECTION 1

SPECIAL CONDITIONS

SECTION 2

INSURANCE REQUIREMENTS

(Refer to City of Duluth Insurance Requirements)

SPECIAL CONDITIONS

SECTION 3

MISCELLANEOUS

1. PROVISIONS REQUIRED BY LAW DEEMED INSERTED. Each and every provision of law and clause required by law to be inserted in the Contract Documents shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If, for any reason, any such provision is not inserted in the Contract, or is not correctly inserted, then upon application of either party, the Contract shall forthwith be physically amended to make such insertion or correction.

2. CORRELATION OF DOCUMENTS.

A. Drawings and specifications are cooperative and supplementary. Portions of the Work which can be best be illustrated by the drawings may not be included in the specifications and portions best described by the specifications may not be depicted on the drawings. All items necessary or incidental to completely construct or erect the Work shall be furnished, whether called for in the specifications or shown on the drawings. Anything mentioned in the specifications and not shown on the drawings, or anything shown or mentioned on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both.

B. In case of disagreement between the drawings and specifications, or within either document itself, the better quality or greater quantity of Work shall be estimated and included in the bid and Contract Price and the matter drawn to the Engineer's attention for decision.

3. NOTICE AND SERVICE THEREOF. Where the manner of giving notice is not otherwise provided for in the Contract Documents, any notice to the Contractor from the Owner relative to any part of the Contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to the Contractor at the address given in the Contractor's Proposal, or at the last business address known to him who gives the notice, or delivered in person to the Contractor or his authorized representative on the site. It is mutually agreed that such notice shall be sufficient and adequate.

4. SUBCONTRACTING.

A. The Contractor may utilize the services of specialty or minority Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty or minority Subcontractors.

B. The Owner reserves the right to approve Subcontractors for any Work. The Contractor, if requested by the Owner, shall submit to the Owner the proposed award and such information as the Owner may require concerning any subcontractor.

C. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, or under their control, as he is for the acts and omissions of persons directly employed by him.

D. The Contractor shall cause appropriate provisions to be inserted in all Subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable

to the Work of Subcontractors, and to give the Contractor the same power as regards terminating any Subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

E. Nothing contained in the Contract Documents shall create any contractual relationships between any Subcontractor and the Owner.

5. PROTECTION OF PERSONS.

A. The Contractor shall:

- (1) At all times protect the lives and health of his employees under the Contract;
- (2) Take all necessary precautions for the safety of all persons on or in the vicinity of the project site.
- (3) Comply with all applicable provisions of Federal, State and Municipal safety laws and building codes.
- (4) Comply with all pertinent provisions of the Manual of Accident Prevention in Construction issued by the Associated General Contractors of America, Inc., latest edition, to prevent accidents or injury to persons on or about or adjacent to the premises where the work is being performed. He shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of persons and shall post danger signs warning against the hazards created in part by features of construction such as protruding nails, rod hoists, well holes, falling materials, etc., and he shall designate a responsible member of his organization on the Work site whose duty shall be the prevention of accidents;
- (5) Provide for all safeguards for the protection of those having Right-of-Entry during field review and observation of the Work.

B. Contractor shall comply with all provisions of the "Williams-Steiger Occupational Safety and Health Act of 1970" including any amendments thereto and rules and regulations issued pursuant thereto, applicable to the Work and performance of the Contract. Where a State in which Work is performed has passed legislation bearing on Occupational Safety and Health, such legislation and amendments thereto, together with rules and regulations issued pursuant thereto shall be complied with by the Contractor.

6. AUTHORITY OF ENGINEER.

A. The Engineer, through its duly authorized representatives, shall furnish engineering services during construction of the Work to the extent provided in the Contract Documents. He shall observe and review the Work in the process of construction or erection. Compliance with the Contract Documents shall be the Contractor's responsibility notwithstanding such observation or review. The Engineer has authority to recommend suspension of the Work to the Owner when it appears such suspension may be necessary to accomplish the proper implementation of the intent of the Contract Documents. The authority to observe, review or recommend suspension of the Work, or exercise such other authority as may be granted by the Contract Documents, shall not be construed or interpreted to mean supervision of construction, which is the Contractor's responsibility, nor make the Engineer responsible for providing a safe place for the performance of Work by the Contractor or by the Contractor's employees, or those of suppliers or Subcontractors, or for access, visits, use, work, travel, or occupancy by any other person. The Engineer shall also have the authority to reject any Work, materials, or equipment which do not conform to the Contract Documents and to decide technical questions which arise in the execution of the Work.

B. The Engineer shall determine the amount, quality, acceptability, and fitness of the several kinds of Work, materials, equipment and supplies which are to be paid for under the Contract and shall decide

questions which may arise in relation to said Work and its compliance with the Contract Documents. The Engineer's estimates and decisions shall be final and conclusive, except as otherwise expressly provided in case any question shall arise between the parties to the Contract relative to the Contract Documents, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for Work under the Contract affected in any manner or to any extent by such question.

C. The Engineer shall decide the meaning and intent of any portion of the Contract Documents where the same may be found obscure or be in dispute.

7. "GOOD REPAIR" PERIOD.

A. The Contractor hereby agrees to keep all Work constructed under the Contract in Good Repair for a minimum period of one (1) year, unless a longer period is otherwise specified in the Contract Documents, from the date of acceptance of all of the Work by the Owner. No provision of the Contract documents shall be valid which limits the "Good Repair" period to less than one (1) year from the date of acceptance of all of the Work by the Owner. The Work is to be phased. Each phase of Work completed shall be inspected and approved for use by the Owner but shall not be accepted until all Work for all phases is complete and a final inspection for all Work has been performed.

B. It is intended that this provision shall apply whether or not bond is required, as a personal obligation of the Contractor.

C. The obligations of the Contractor as herein provided shall be in addition to and not in limitation of any obligations imposed upon him by special guarantees required by the Contract Documents or otherwise prescribed by law.

8. VARIATION FROM ESTIMATED QUANTITIES. The Contractor may reasonably expect a variation in estimated quantities such that the total payment for the completed Work may range from 75 to 125 percent of the total amount of the Contract based on the estimated quantities defined in the proposal. The Contractor will not be allowed any claims for anticipated profits, for loss of profits, or for any damages because of a difference between the estimate of any item defined in the Proposal and the amount of the item actually required or for the elimination of any part of the Work. Funds for construction of the Work herein contemplated are limited. The Owner reserves the right to eliminate or reduce the items of the proposal or any of the Work as may be required to bring the cost of the Work within the limits of available funds.

9. WATER FOR CONSTRUCTION. Water used for construction of this project will be furnished by the Contractor. The Contractor shall make the necessary arrangements with the Owner of the source of water for securing and/or transporting such water. No separate payment will be made for water used but the cost thereof shall be included in the various items of the proposal and bid schedule.

10. LIGHTS AND POWER. The Contractor shall provide, at his own expense, temporary lighting and facilities required for the proper prosecution and inspection of the work.

11. COORDINATION WITH OTHERS. In the event other contractors are doing work in the same area simultaneously with this project, the Contractor shall coordinate his proposed construction with that of the other contractors. The Contractor shall notify the Engineer of said coordination attempts and the results.

12. TESTING, INSPECTION, AND CONTROL. The Owner shall pay for all passing tests, the Contractor shall pay for all failing tests. Charges for failing tests will be deducted from the Contractor's earnings at the end of project at the time of final payment. The Contractor will pay for tests, other than Acceptance testing, and shall be incidental to those items which require testing. The contractor shall furnish, at his own expense, all necessary specimens for testing of the materials, as required by the Engineer. The contractor shall be responsible for notifying the testing laboratory to pick up the test samples. Also, the Engineer reserves the

right to test at any location on the project, and at any frequency he deems necessary before, during and after incorporation of all materials into the project to satisfy himself and ensure that all materials meet the specified requirements. All materials utilized in the project must meet specification requirements before, during and after incorporation into the project. Any additional testing that the contractor deems necessary to ensure himself that the materials he is installing meet the required specifications and/or as a proof of the authorized testing laboratory shall be solely the expense of the contractor whether the tests pass or fail.

13. LINES AND GRADES. Section 50, Item 50-06 of the General Provisions and Technical Specification P-104 includes all requirement for all lines, grades, and measurements necessary to the proper prosecution and control of the work contracted for under these specifications shall be provided by the Contractor and he shall be solely responsible for the accuracy of said lines, grades and measurements.

14. TRADE NAMES AND MATERIALS. No material which has been used by the Contractor for any temporary purpose whatsoever is to be incorporated in the permanent structure without written consent of the Engineer.

Where materials or equipment are specified by a trade or brand name, it is not the intention of the Owner to discriminate against an equal product of another manufacturer, but rather to set a definite standard of quality or performance, and to establish an equal basis for the evaluation of bids. Where the words "equivalent", "proper", or "equal to" are used, they shall be understood to mean that the thing referred to shall be proper, the equivalent of, or equal to some other thing, in the opinion or judgement of the Engineer. Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. Notwithstanding that the words "or equal to" or other such expressions may be used in the plans and specifications in connection with the material, manufactured article or process, the material, manufactured article or process specifically designated shall be used, unless a substitute shall be approved in writing by the Engineer and the Engineer shall have the right to require the use of such specifically designated material, article or process.

15. PROPERTY LINES AND MONUMENTS. The Contractor shall protect all property corner markers and any other monument, and when any such markers or monuments are in danger of being disturbed, they shall be properly referenced and if disturbed shall be reset at the expense of the Contractor.

16. FENCES AND DRAINAGE CHANNELS. Boundary fences or other improvements removed to permit the installation of the work shall be replaced in the same location and left in a condition as good or better than that in which they were found. Existing fences not to be removed and intersecting with new fencing (fencing outside airport property) shall be connected to the new fencing in a manner acceptable to the fence owner and the Owner and/or Engineer.

Where surface drainage channels are disturbed or blocked during construction, they shall be restored to their original condition of grade and cross section after the work of construction is completed.

17. DISPOSAL OF WASTE AND SURPLUS EXCAVATION. All trees, stumps, slashings, brush or other debris to be removed from the site as a preliminary to the construction work shall be removed from the property and legally disposed of in a manner approved by the Engineer and at a site approved by the Owner. No burning on site will be permitted.

All excavated earth in excess of that required for embankment and backfill shall be disposed of in a satisfactory manner as shown on the plans or as directed by the Engineer to a site approved by the Owner.

18. AIR POLLUTION. The Contractor shall comply with all Federal, State and Local Requirements.

19. EXISTING UTILITIES AND SERVICE LINES. The Contractor shall be responsible for the protection of all existing utilities or service lines crossed or exposed by his construction operations. Where existing utilities or service lines are cut, broken or damaged, the Contractor shall replace or repair the utilities or service lines with

the same type of original material and construction, or better, at his own cost and expense, with the exception of those items included in the bid schedule.

20. RECORDS OF MATERIALS PURCHASED. By a certain time each month as defined and established at the preconstruction conference, the Contractor shall furnish to the Engineer, duplicate copies of all invoices for materials furnished to be incorporated into the work, plus a statement of all materials previously included on monthly estimates and incorporated into the work during the preceding month. This information is to be used to determine the value of materials on hand to be included in the monthly estimate for periodical payment.

21. CONTRACTOR ACCESS TO PROJECT SITE. The Contractor shall have a specific access route to the project site. This route is shown in the construction drawings. The Contractor shall use this route to bring all equipment and materials in. If the Contractor has a better route which would prevent damage to existing roads or provide safer access to the construction site, the Contractor shall supply a drawing showing the recommended route to the Owner and Engineer for approval at the preconstruction conference.

22. NIGHTTIME WORK. In phases of work requiring daytime work, the Contractor shall not perform nighttime work unless given approval in writing by the Engineer. The Contractor shall request in writing approval to perform nighttime work. If the Engineer approves said nighttime work, the Contractor shall coordinate closely with the Engineer and the Owner during any and all approved nighttime work. This includes any nighttime hauling of materials to the project site. If the Contractor wishes to perform nighttime work or haul materials at night, the Contractor shall reimburse the Owner for any nighttime inspection costs incurred by the Owner to adequately and properly inspect said nighttime work or hauling of materials.

In phases of work requiring night time work, the Contractor shall perform said night time work within the time frame allotted by the Owner. The Contractor shall coordinate with the Owner and Engineer each day before night time operations to ensure all special instructions, time limitations, directives, etc. are adhered to each night of night time operations. The Contractor shall not enter areas requiring night time construction operations until cleared to do so by the Owner. Any violation will result in a \$1,000.00 fine for each infraction.

23. DUST CONTROL. The Contractor shall maintain strict dust control during the project duration. There are operational areas, aircraft parked on the airport as well as commercial facilities which performs maintenance and repair work to aircraft. Therefore, it is imperative that strict dust control be maintained so that damage or nuisance to the areas and facilities described above or airport operational areas is prevented. This dust control shall also include the dust which may occur during any construction procedure.

24. TRIP TICKETS, INVOICES, WEIGH BILLS, ETC. The Contractor shall be responsible for supplying any and all trip tickets, invoices, weigh bills, etc. which show the quantities actually used in the construction of the project. All said trip tickets, invoices, weigh bills, etc. shall relate directly to specific bid items. If the Contractor fails to submit said trip tickets, invoices, weigh bills, etc. to the Engineer or his authorized representative prior to or during the time of installation of materials into the project, any material overruns claimed by the Contractor at the end of the project shall not be accepted.

25. FINAL IN-PLACE EXCAVATION & EMBANKMENT SECTIONS. At the completion of the project, the Contractor shall submit final in-place earthwork cross sections for the entire project site affected by earthwork operations with the detailed calculations as to as-built excavation and/or embankment. The Contractor may use the cross sections provided in the plans and plot the as-built conditions on those cross section sheets along with the accompanying calculations. The Contractor shall be paid based upon the volume between the original ground line and the as-built ground line. The Contractor shall be paid based on the type of operations for which a bid price was provided.

END OF SPECIAL CONDITIONS - SECTION 3

SPECIAL CONDITIONS

SECTION 4

LISTING OF DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE.

The Owner and/or Engineer shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist the Engineer in observing performance of the Work of the Contractor.

Through more extensive on-site observations of the Work in progress and field checks of materials and equipment by the RPR and assistants, the Engineer shall endeavor to provide further protection for the Owner against defects and deficiencies in the Work; but, the furnishing of such services will not make the Engineer responsible for or give the Engineer control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for the Contractor's failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the RPR are limited to those of the Engineer in the Engineer's agreement with the Owner and in the construction Contract Documents, and are further limited and described as follows:

A. General

1. The RPR is the Engineer's agent at the site and will act as directed by and under the supervision of the Engineer, and will confer with the Engineer regarding the RPR's actions. The RPR's dealings in matters pertaining to the on-site Work shall in general be with the Engineer and the Contractor keeping the Owner advised as necessary. The RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of the Contractor. The RPR shall generally communicate with the Owner with the knowledge of and under the direction of the Engineer.

B. Duties and Responsibilities of the RPR

1. Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by the Contractor and consult with the Engineer concerning acceptability.

2. Conferences and Meetings: Attend meetings with the Contractor and Owner, such as preconstruction conferences, weekly progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

3. Liaison:

a. Serve as the Engineer's liaison with the Contractor, working principally through the Contractor's superintendent and assist in understanding the intent of the Contract Documents; and assist the Engineer in serving as the Owner's liaison with the Contractor when the Contractor's operations affect the Owner's on-site operations.

b. Assist in obtaining from the Owner additional details or information, when required for proper execution of the Work.

4. Shop Drawings and Samples:

a. Record date of receipt of Shop Drawings and samples.

b. Receive samples which are furnished at the site by the Contractor, and notify the Engineer of availability of samples for examination.

c. Advise the Engineer and the Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by the Engineer.

5. Review of Work, Rejection of Defective Work, Inspections and Tests:

a. Conduct on-site observations of the Work in progress to assist the Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

b. Report to the Engineer whenever the RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise the Engineer of Work that the RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that the Contractor maintains adequate records thereof; and observe, record and report to the Engineer appropriate details relative to the test procedures and startups.

d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of those inspections and report to the Engineer.

6. Interpretation of Contract Documents: Report to the Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to the Contractor clarifications and interpretations as issued by the Engineer.

7. Modifications: Consider and evaluate the Contractor's suggestions for modifications in Drawings or Specifications and report the suggestions along with the RPR's recommendations to the Engineer. Transmit to the Contractor decisions as issued by the Engineer.

8. Records:

a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, the Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

b. Keep a diary or log book, recording the Contractor hours on the job site, weather conditions, data relative to questions of Work Field Orders, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to the Engineer.

c. Record names, addresses and telephone numbers of all the Contractors, Subcontractors and major suppliers of materials and equipment.

9. Reports:

a. Furnish the Engineer daily progress reports of progress of the Work and of the Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

b. Consult with the Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.

c. Draft proposed Change Orders and Field Orders, obtaining backup material from the Contractor and recommend to the Engineer Change Orders and Field Orders.

d. Report immediately to the Engineer and the Owner the occurrence of any accident.

10. Payment Requests: Review applications for payment with the Contractor for compliance with the established procedure for their submission and forward with recommendations to the Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

11. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by the Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to the Engineer for review and forwarding to the Owner prior to final payment for the Work.

12. Completion:

a. Before the Engineer issues a Certificate of Substantial Completion, submit to the Contractor a list of observed items requiring completion or correction.

b. Conduct final inspection in the company of the Engineer, the Owner and the Contractor and prepare a final list of items to be completed or corrected.

c. Observe that all items on final list have been completed or corrected and make recommendations to the Engineer concerning acceptance.

C. Limitations of Authority of the Resident Project Representative (RPR):

1. He shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by the Engineer.

2. He shall not exceed limitations of the Engineer's authority as set forth in the Contract Documents.

3. He shall not undertake any of the responsibilities of the Contractor, Subcontractors or the Contractor's superintendent.

4. He shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.

5. He shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.

6. He shall not accept Shop Drawing or sample submittals from anyone other than the General Contractor.

7. He shall not authorize the Owner to occupy the Project in whole or in part.

8. He shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by the Engineer.

END OF SPECIAL CONDITIONS - SECTION 4

SPECIAL CONDITIONS

SECTION 5

SHOP DRAWING SUBMITTAL SUMMARY

1. The following list is intended to assist the Contractor in identifying shop drawings which are required to complete the Work described in the Contract Documents. The list is not necessarily all inclusive and other shop drawings not listed may be required to be submitted by the Contractor to meet the requirements stated in General Provision Section 60, "Control of Materials" and Special Conditions Section 1, Paragraph 9, "Shop Drawings, Product Data and Samples."

Item No.

Item Description

(To be Provided)

END OF SPECIAL CONDITIONS - SECTION 5

ITEM P-100 MOBILIZATION & GENERAL CONDITIONS

DESCRIPTION

100-1.1 The work specified in this item consists of the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, buildings, guard houses, utilities, safety equipment and first aid supplies, sanitary and other facilities as required by these specifications and state and local laws and regulations. The cost of bonds and any required insurance and any other preconstruction expenses necessary for the start of the work, excluding the cost of construction materials, shall also be included in this section.

METHOD OF MEASUREMENT

100-2.1 Measurement of the item, Mobilization, as specified herein will be on a lump sum basis.

BASIS OF PAYMENT

100-3.1 The work and incidental costs covered under this item will be paid for at the Contract lump sum price for the item of mobilization. The Engineer shall make the final determination of the allowable percentage of completion for the payment of mobilization and shall approve the percentage paid based on the percent of contract amount actually earned which will be based upon actual work completed.

PARTIAL PAYMENTS. Partial payments will be made in accordance with the following:

<u>Percent of Contract Amount Earned*</u>	<u>Allowable Percent Of the Lump Sum Price for the Item**</u>
0	0
5	25
10	50
25	75
50	100

* The Percent of Contract Amount Earned equals the work completed to date (including the total of all previous mobilization) plus or minus work completed associated with executed change orders, if any, divided by the Total Original Contract Amount plus or minus the Total Executed Change Order Amounts, if any.

** In the event the lump sum bid for mobilization exceeds 7.5 percent of the original contract amount for the project, the difference (remainder above 7.5%) will not be paid until the project is complete and the Engineer and Owner has issued a statement of final acceptance as of the date when the Contractor has furnished all of the required reports, certifications and other documentation. The date of final acceptance by the Engineer and Owner will govern, in accordance with statutes and regulations, for payment of retainage or other monies due to the Contractor.

Payment shall be made under:

Item P-100-3.1

Mobilization and General Conditions -- Per Lump Sum.

TESTING REQUIREMENTS

100-4.1 None.

END OF ITEM P-100

ITEM P-102 SAFETY AND SECURITY

GENERAL

102-1.1 The provisions of this safety and security plan and associated procedures are applicable within the boundaries of the **Duluth International Airport**. A complete understanding of all procedures and requirements contained herein is required to ensure safety during construction. This safety plan is a part of this Contract and deviations from the requirements established herein will be sufficient cause for Contract termination.

Required reference material associated with this safety plan includes:

FAA AC 150/5200-18[C], Airport Safety Self-Inspection
FAA AC 150/5210-5[D], Painting, Marking and Lighting of Vehicles Used on an Airport
FAA AC 150/5370-2[E], Operational Safety on Airports During Construction
FAA AC 150/5370-12[A] Quality control of Construction for Airport Grant Projects

Copies of these documents are included in the specifications.

CONTRACTOR SAFETY AND SECURITY OFFICER

102-2.1 CONTRACTOR SAFETY AND SECURITY OFFICER (CSSO). The Contractor shall appoint its on-site Construction Superintendent or other qualified individual(s) as its duly authorized representative to serve as Contractor Safety and Security Officer (CSSO) for the duration of the Contract. The CSSO shall thoroughly understand the safety and security requirements of the Contract, the necessity for them and shall have sufficient authority to implement its provisions without significant deviation. The Contractor shall notify the Engineer in writing of the name of the individual(s) selected for the assignment.

The CSSO shall represent the Contractor on safety and security requirements compliance. The CSSO shall be especially knowledgeable regarding the requirements of FAA AC's 150/5200-18, Airport Self Inspection Guide and 150/5370-2 Operational Safety on Airports During Construction, latest edition.

102-2.2 RESPONSIBILITIES OF THE CONTRACTOR SAFETY AND SECURITY OFFICER. Prior to the desired date for commencement of any work on the project, the CSSO shall accomplish the following:

a. Develop and submit in writing a detailed work sequence schedule with dates and times specified for all milestone events. This sequence schedule shall conform, as a minimum, to the events specified in Section 3.1, Construction Sequence, and shall be subject to the approval of the Engineer. To assure adequate time for coordination, this document shall be submitted at least one week prior to the date of the Preconstruction Conference.

b. Develop and submit in writing a detailed outline of the procedures to be followed to maintain safety and security of both Contractor operations and the integrity of airport landside and airside operations during the prosecution of contract work. This plan shall detail, in addition, the procedures to be followed in the event of an accident or fire involving Contractor personnel and the Contractor's efforts to maintain fire protection and security. These procedures shall be subject to the approval of the Engineer and reflect any change as may be deemed necessary.

c. Conduct at least one meeting of all Contractor supervisory personnel prior to the start of contract work. The purpose of this meeting is to review the approved Work sequence schedule and safety and security procedures. Attendance at this meeting by the CSSO, all Contractor supervisory personnel and the Engineer is mandatory. This meeting shall also be open to other employees of the Contractor and others as the Engineer may deem appropriate. Minutes of this meeting shall be taken by the CSSO, copies provided to each supervisor and kept on file in the Contractor's construction office for

periodic review and updating.

d. Develop a safety and security orientation program and provide a briefing for all employees of the Contractor and subcontractors that will be used on the project. A similar briefing will be given to new employees prior to their use on contract work. In addition, the CSSO shall be responsible for briefing, from time to time, all Contractor personnel on any changes to safety and security measures deemed necessary.

CONSTRUCTION SEQUENCING

102-3.1 CONSTRUCTION SEQUENCE. The Contractor shall prepare a construction schedule and submit to the Engineer at least one week prior to the pre-construction conference.

102-3.2 CLOSING RUNWAYS. The Contractor shall acquaint his supervisors and employees with the sequence of construction and its relationship to airport activity and aircraft operations that are inherent to this airport. No runway, taxiway, apron or airport roadway shall be closed without the written approval of the Owner, to enable necessary NOTAMS and/or advisories to airport fixed based operators (FBOs), tenants and users.

The Contractor shall contact the Engineer a minimum of ten (10) days prior to any requested closing.

Any construction activity within **200** feet of the centerline of an active runway or within **85** feet of the centerline of an active taxiway or apron requires the closure of the affected area. These safety areas are shown on the phasing plan.

The Engineer will arrange for an inspection prior to return to service of any facility, that has been closed for work, on or adjacent thereto, or that has been used for a crossing point or haul route by the Contractor.

MARKING AND LIGHTING

102-4.1 Proper marking and lighting of areas on the airfield associated with the construction shall be the responsibility of the Contractor. This will include properly marking and lighting closed runways, taxiways, taxilanes, and aprons, the limits of construction, material storage areas, equipment storage areas, haul routes, parking areas and other areas defined as required for the Contractor's exclusive use. The Contractor shall erect and maintain around the perimeter of these areas suitable marking and warning devices visible for day and night use. Temporary barricades, flagging, and flashing warning lights shall be required at critical access points. The type and location of marking and warning devices will be approved by the Engineer.

Special emphasis shall be given to open trenches, excavations, heavy equipment marshalling areas, and stockpiled material located in the airport operations area, which shall be predominantly marked by the Contractor with flags and lighted by approved light units during hours of restricted visibility and darkness. All marking shall be in accordance with FAA Advisory Circular (AC) 150/5340-1J or latest edition.

TRAFFIC CONTROL

102-5.1 VEHICLE IDENTIFICATION. The Contractor shall establish and maintain a list of Contractor and subcontractor vehicles authorized to operate on the site. Contractor employee vehicles shall be restricted to the Contractor's staging area and are not allowed in the Airport Operations Area (AOA) at any time. To be authorized to operate on the airport, each Contractor or subcontractor's vehicle shall:

a. be marked/flagged for high daytime visibility and lighted for nighttime operations. Vehicles that are not marked and/or lighted shall be escorted by a vehicle appropriately marked and/or lighted.

Vehicles requiring escort shall be identified on the list.

b. be identified with the name and/or logo of the Contractor and be of sufficient size to be identified at a distance. Vehicles needing intermittent identification could be marked with tape or with commercially available magnetically attached markers. Vehicles that are not appropriately identified shall be escorted by a vehicle that conforms to this requirement. Vehicles requiring escort shall be identified on the list.

c. be operated in a manner that does not compromise the safety of either landside or airside airport operations. If, in the opinion of the Engineer, any vehicle is operated in a manner not fully consistent with this requirement, the Engineer has the right to restrict operation of the vehicle or prohibit its use on the airport.

102-5.2 ACCESS TO THE SITE OF CONSTRUCTION. The Contractor's access to the site shall be as shown on the Contract Layout Plan. No other access points shall be allowed unless approved by the Engineer. All Contractor traffic authorized to enter the site shall be experienced in the route or guided by Contractor personnel. The Contractor shall be responsible for traffic control to and from the various construction areas on the site, and for the operation and security of the access gate to the site. A Contractor's flagman or traffic control person shall monitor and coordinate all Contractor traffic at the access gate with Airport Security. The Contractor shall not permit any unauthorized construction personnel or traffic on the site. Access gates to the site shall be locked and secured at all times when not attended by the Contractor. If the Contractor chooses to leave any access gate open, it shall be attended by Contractor personnel who are familiar with the requirements of the Airport Security Program. The Contractor is responsible for the immediate cleanup of any debris deposited along the access route as a result of his construction traffic. Directional signing from the access gate along the delivery route to the storage area, plant site or work site shall be as directed by the Engineer. In addition, the following requirements are applicable:

a. All Contractor traffic authorized to travel on the airport shall have been briefed as part of the Contractor's construction safety and security orientation program, be thoroughly familiar with the access procedures and route for travel or be escorted by personnel authorized by the Contractor Safety and Security Officer (CSSO).

b. The Contractor shall install work site identification signs at the authorized access point(s). If, in the opinion of the Engineer, directional signs are needed for clarity, they shall be installed along the route authorized for access to each construction site.

c. Under no circumstance will Contractor personnel be permitted to drive their individually owned vehicles to any construction site on the airport. All vehicles must be parked in the area designated for employee parking and out of secured airport property.

d. In addition to the inspection and cleanup required at the end of each shift, the Contractor is responsible for the immediate cleanup of any debris generated along the construction site access route(s) as a result of construction related traffic or operations whether or not created by Contractor personnel.

102-5.3 MATERIAL SUPPLIERS. All material suppliers, subcontractors and visitors to the work site are obligated to follow the same safety and security operating procedures as the Contractor. All material suppliers shall make their deliveries using the same access points and routes as the Contractor and shall be advised of the appropriate delivery procedures at the time the materials order is placed. The Contractor shall not use the Airport address for any delivery but shall use the street address appropriate to the location of the entrance of the work site. If it is not practical to conform to the vehicle identification requirements of Section 102-5.1 and the safety and security operations program requirements of Section 102-2.2, the Contractor shall be prepared to escort all suppliers, subcontractors and visitors while they are on the airport.

102-5.4 PERSONNEL IDENTIFICATION. All employees, agents, vendors, invitees, etc. of the Contractor or subcontractors requiring access to the construction site shall, conform to the Security Program.

GENERAL SAFETY REQUIREMENTS

102-6.1 All Contractor vehicles that are authorized to operate on the airport outside of the designated construction area limits or haul routes as defined herein shall display in full view above the vehicle a flashing amber (yellow) dome-type light or a three-foot by three-foot, or larger, orange and white checkerboard flag, each checkerboard color being one-foot square. Vehicles must be under control of a Contractor mobile (two-way) radio operator (flagmen) monitoring the Airport frequency. Vehicle operators must be vigilant for conflict with any aircraft and give way to any operating aircraft.

All Contractor vehicles that are required to operate outside of the construction area limits as defined herein and cross active runways, taxiways, aprons, or runway approach clear zones shall do so under the direct control of a flagman who is monitoring the Airport frequency. Flagmen and two-way radios shall be furnished by the Contractor. Flagmen shall be instructed in the use of two-way radios prior to use. All aircraft traffic on runways, taxiways and aprons shall have priority over Contractor's traffic.

Construction vehicles not in use for extended periods during the work day, or during nights and weekends (nonwork periods) shall be parked away from active runways, taxiways, and aprons in designated vehicle marshalling areas.

102-6.2 In order to protect all aircraft traffic, aviation related businesses, terminal apron areas, etc. from potential damage caused by foreign object debris (FOD) generated by construction activities, the Contractor shall provide a vacuum truck as required at the startup of construction to daily vacuum all pavements affected by construction. The vacuum truck shall remain on-site for the duration of the project and shall be available at the discretion of the Owner to vacuum pavement areas adjacent to the construction areas to ensure no FOD is present on pavements within 500 feet of any construction area. Protecting the aircraft, airport tenants, users, public, etc. against FOD is a critical safety issue therefore the cost of the vacuum truck will be included in the cost established for this specification item.

CONSTRUCTION CONTROL

102-7.1 A primary and alternate responsible Contractor's representative shall be designated by the Contractor. The Contractor's representatives shall be available locally on a 24-hour basis. Names of the primary and alternate, including phone number, shall be made available to the Engineer by the Contractor. The Contractor shall insure that the names and phone numbers are kept current and made available to the Engineer.

CONSTRUCTION TECHNIQUES

102-8.1 Construction shall be planned and conducted throughout this project in such a manner as to allow the maintenance of completely safe airport operations. Every effort shall be made to reduce the impact of construction activity on overall airport operations. To this end the Contractor's activities shall be conducted in such a manner so as to preclude, except where absolutely required, open excavations, trenches, ditches and above ground obstacles such as booms on cranes or obstacle markers such as wooden saw horses. The primary responsibility for assuring that the safest possible construction techniques are followed rests with the Contractor Safety and Security Officer (CSSO).

METHOD OF MEASUREMENT

102-9.1 The item of Safety and Security shall be measured as a lump sum item when required and

furnished for the life of the Contract.

BASIS OF PAYMENT

102-10.1 Payment shall be made for airport safety and security measures for personnel or materials related to this specification item and incidentally required to satisfy the specified objective(s) under item P-102-10.0, Safety and Security. This compensation shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

PARTIAL PAYMENTS. Partial payments will be made in accordance with the following:

<u>Percentage of Original Contract Earned</u>	<u>Allowable Percent of the Lump Sum Price for the Item</u>
5	15
15	20
25	25
50	50
75	75
100 (or Contract Completion)	100

Payment shall be made under:

Item P-102-10.1	Safety and Security - Per Lump Sum.
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TESTING REQUIREMENTS

102-11.1 None.

END OF ITEM P-102

ITEM P-104 PROJECT SURVEY AND STAKEOUT

DESCRIPTION

104-1.1 Under this item, the Contractor shall do all necessary surveying required to construct all elements of the work as shown on the Contract Drawings and specified in the proposal and specifications. This shall include but not be limited to stakeout, layout and elevations for pavements, structures, forms and appurtenances as shown and required, consistent with the current practices and shall be performed by qualified personnel acceptable to the Engineer. The stakeout survey shall proceed immediately following the award of the Contract or as soon as authorized by the Owner and shall be expeditiously progressed to completion in a manner and at a rate satisfactory to the Engineer. The Contractor shall keep the Engineer fully informed as to the progress of the stakeout survey. All survey work shall be provided under the direction of a licensed land surveyor.

MATERIALS

104-2.1 All instruments, equipment, stakes and any other material necessary to perform the work satisfactorily shall be provided by the Contractor.

All stakes used shall be of a type approved by the Engineer. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times.

The Contractor shall supply to the Engineer a rod, level and tripod for his exclusive use during the entire project. The rod shall be 15 feet in length with hundredth-of-a-foot graduation. The level shall be self-leveling and have documentation demonstrating it has been calibrated within one month of the work commencement. All provided equipment shall be in good working order and maintained by the Contractor throughout the course of the project.

CONSTRUCTION METHODS

104-3.1 The Contractor shall trim trees, brush and other interfering objects, not inconsistent with the Contract Drawings, from survey lines in advance of all survey work to permit accurate and unimpeded work by his stakeout survey crews.

The exact position of all work shall be established from control points, baseline transit points or other points of similar nature that are shown on the Contract Drawings and/or modified by the Engineer. Any error, apparent discrepancy or absence in or of data shown or required for accurately accomplishing the stakeout survey shall be referred to the Engineer for interpretation or furnishing when such is observed or required.

The Contractor shall place two offset stakes or references at each centerline station and at such intermediate locations as the Engineer may direct. From computations and measurements made by the Contractor, these stakes shall be clearly and legibly marked with the correct centerline station number, offset and cut or fill so as to permit the establishment of the exact centerline location and elevation during construction. If markings become faded or blurred for any reason, the markings shall be restored by the Contractor at the request of the Engineer. He shall locate and place all cut, fill, slope, fine grade or other stakes and points, as the Engineer may direct, for the proper progress of the work. All control points shall be properly guarded and flagged for easy identification.

Drainage structures shall be staked out by the Contractor at the locations and elevations shown on the Contract Drawings or specified by the Engineer.

Reference points, baselines, stakes and benchmarks for borrow pits shall be established by the Contractor.

Permanent survey marker locations shall be established and referenced by the Contractor.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc., throughout the life of the work. Damaged or destroyed points, benchmarks or stakes, or any reference points made inaccessible by the progress of the construction, shall be replaced or transferred by the Contractor. Any of the above points which may be destroyed or damaged shall be transferred by the Contractor before they are damaged or destroyed. All control points shall be referenced by ties to acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the Engineer immediately. All stakeout survey work shall be referenced to the centerlines shown on the Contract Drawings. All computations necessary to establish the exact position of the work from control points shall be made and preserved by the Contractor. All computations, survey notes and other records necessary to accomplish the work, shall be neatly made. Such computations, survey notes and other records shall be made available to the Engineer upon request and shall become the property of the Owner and delivered to the Engineer not later than the date of acceptance of the Contract.

The Contractor shall furnish, at his expense, all horizontal and vertical control, all staking and layout of construction work called for on the plans and the Engineer and Owner shall not be responsible for such work. However, the Owner and Engineer reserve the right to check all said lines, grades, and measurements with their appointed surveyor. Should the Owner's surveyor detect errors in said lines, grades, and measurements, the Contractor shall pay for all said surveying costs and subsequent surveying costs performed to verify correction of errors found in said lines, grades and measurements. Included in this are all blue top staking for subgrade and base course installation. Definition of an error shall be a discrepancy of 1/4" or more. In the case of a discrepancy between the technical specifications and this defined tolerance, this tolerance shall govern.

Prior to the final cross-section survey of the work by the Contractor, the Contractor shall reestablish centerline or baseline points and stationing as required by the Engineer.

Prior to the final cross-section survey of any borrow pits, the Contractor shall reestablish the baseline points and stationing, as well as any necessary benchmarks as required by the Engineer.

During the progress of the construction work, the Contractor will be required to furnish all of the surveying and stakeout incidental to the proper location by line and grade for each phase of the work. For paving and any other operation requiring extreme accuracy, the Contractor will restake with pins or other acceptable hubs located directly adjacent to the work at a spacing directed by the Engineer.

Any existing stakes, iron pins, survey monuments or other markers defining property lines which may be disturbed during construction shall be properly tied into fixed reference points before being disturbed and accurately reset in their proper position upon completion of the work.

Just prior to completion of the work, the Contractor shall reestablish, if necessary, and retie all control points as permanently as possible and to the satisfaction of the Engineer.

104-3.2 The Contractor shall be required to submit cross sectional data to the Engineer at monthly intervals prior to the Contractor submittal of the monthly application for payment so that the Engineer can verify the quantities of various earthwork and materials volumes for payment. All cross sectional data provided at any time will be in AutoCad 2000 or higher format only. No other formats will be accepted. If the data is submitted in another format other than AutoCad, no earthwork or other materials volumes will be calculated and approved for payment. The earthwork shall include, but not be limited to, unclassified excavation, embankment, new or existing subbase courses, new or existing base courses, sand/asphalt subgrade, topsoil, etc.

METHOD OF MEASUREMENT

104-4.1 Payment will be made at the lump sum price bid for this item.

BASIS OF PAYMENT

104-5.1 The lump sum price bid shall include the cost of furnishing all labor, equipment, instruments and all other material necessary to satisfactorily complete the work's surveying and stakeout. Partial payments will be made at the discretion of the Engineer as the work progresses based generally on the percentage of actual work completed compared to the total construction cost.

Payment will be made under:

Item P-104-5.1	Project Survey and Stakeout - Per Lump Sum.
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TESTING REQUIREMENTS

104-6.1 None.

END OF ITEM P-104

ITEM P-105 TEMPORARY CONSTRUCTION ITEMS

DESCRIPTION

105-1.1 This item consists of furnishing all labor, materials and equipment for temporary construction items necessary for the safe and proper execution of work and not otherwise included in other contract bid items. The Contractor will be expected to supply and utilize the items listed below and other items contained in the plans and specifications. Temporary construction items to be provided include, but are not limited to the following: flaggers, portable floodlighting, steel plates for temporary covering of excavations and structures as required, construction barricades, test pitting, and men and equipment as needed to keep all areas free of debris.

MATERIALS

105-2.1 CONSTRUCTION BARRICADES. Construction barricades shall be constructed in accordance with the details shown in the plans and shall be placed in accordance with the phasing plans and phasing notes drawings.

105-2.2 PORTABLE FLOODLIGHTING. Portable floodlighting shall be provided, as required, for construction that must occur during nighttime operations. The Contractor shall provide sufficient units so that all work areas are illuminated to a level of 5 horizontal footcandles. The lighting levels shall be calculated and measured in accordance with the current standards of the Illumination Engineering Society.

105-2.3 STEEL PLATES. Steel plates of adequate size and thickness shall be furnished as necessary to cover temporary excavations, unfinished structures or surfaces requiring protection or for safety purposes. Plates shall be securely fastened down and shall be adequate to safely support any anticipated loadings to be imposed.

105-2.4 OTHER MISCELLANEOUS ITEMS. Any other items not listed herein but which are associated directly or indirectly with temporary construction related work shall, by reference, be included in the requirements of this specification. No additional payment will be made for any temporary construction related item not specifically listed herein. The Contractor shall be responsible for providing any and all items necessary to ensure a safe, secure and functioning project construction site.

CONSTRUCTION METHODS

105-3.1 CONSTRUCTION BARRICADES. Barricades shall be placed around each phase of the work in accordance with the phasing plans and shall remain in place until completion of work in each phase.

105-3.2 FLAGGERS. Flaggers shall be provided, as necessary, to control the Contractor's traffic during the prosecution of work. All Contractor vehicles or equipment that are required to cross active airfield pavement or safety areas shall do so under the direct control of a competent flagger.

105-3.3 PORTABLE FLOODLIGHTING. Portable floodlighting is required for construction during periods of limited visibility (i.e., nighttime). Illumination requirements shall be those contained in Paragraph 105-2.2.

METHOD OF MEASUREMENT

105-4.1 No direct measurement will be made for this item. Payment will be made on a lump sum basis.

BASIS OF PAYMENT

105-5.1 Payment will be made at the lump sum bid price for "Temporary Construction Items." This payment shall be full compensation for furnishing all materials and labor for placing, moving and removing construction barricades and steel plates, providing flaggers, furnishing portable floodlighting, test pitting, and for any other labor, materials, equipment, tools and incidentals necessary for temporary items required for construction of this work.

Payment for these items will be made in installments. The first payment of 10 percent of the lump sum price will be included in the first progress estimate following the initiation of construction work. The remaining 90 percent of the lump sum price will be included as installments in subsequent progress estimates. Each such installment will be determined based on the ratio of the total work completed to date of the total contract amount.

Payment will be made under:

Item P-105-5.1

Temporary Construction Items - Per Lump Sum.

TESTING REQUIREMENTS

105-6.1 As required.

END OF ITEM P-105

ITEM F-162 CHAIN-LINK FENCES

DESCRIPTION

162-1.1 This item shall consist of furnishing and erecting a chain-link fence in accordance with these specifications and the details shown on the plans and in conformity with the lines and grades shown on the plans or established by the Engineer.

MATERIALS

162-2.1 FABRIC. ~~[The fabric shall be woven with a 9-gauge [galvanized steel wire] [polyvinyl chloride (PVC) coated steel] [aluminum alloy] [zinc 5% aluminum mischmetal] wire in a 2-inch (50 mm) mesh and shall meet the requirements of [ASTM A 121].] [The fabric shall be woven from a [] gauge aluminum coated steel wire in a 2-inch (50 mm) mesh and shall conform to the requirements of ASTM A 491.]~~

162-2.2 BARBED WIRE. Barbed wire shall be 2-strand 12-1/2 gauge **[zinc-coated]** ~~[aluminum coated]~~ wire with 4-point barbs and shall conform to the requirements of [].

Zinc-coated barbed wire shall conform to the requirements of ASTM A 121, Class 3, Chain Link Fence Grade.

162-2.3 POSTS, RAILS AND BRACES. Line posts, rails, and braces shall conform to the requirements of ASTM F-1043 or ASTM F 1083 as follows:

[Galvanized tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A, or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.]

[Roll Formed Steel Shapes (C-Sections) shall conform to the requirements of Group IIA, and be galvanized in accordance with the requirements of **ASTM F 1043**, Type A.]

[Hot-Rolled Shapes (H Beams) shall meet the requirements of Group III, and be galvanized in accordance with the requirements of **ASTM F 1043**, Type A.]

[Aluminum Pipe shall conform to the requirements of Group IB.]

[Aluminum Shapes shall conform to the requirements of Group IIB.]

[Vinyl or polyester coated steel shall conform to the requirements of ASTM F 1043, Paragraph 7.3 Optional Supplemental Color Coating.]

[Composite posts shall conform to the strength requirements of ASTM F 1043 or ASTM F 1083. The strength loss of composite posts shall not exceed 10 percent when subjected to 3,600 hours of exposure to light and water in accordance with ASTM G 23, ASTM G 26, and ASTM G-53.]

Posts, rails, and braces furnished for use in conjunction with aluminum alloy fabric shall be aluminum alloy or composite.

Posts, rails, and braces, with the exception of galvanized steel conforming to F 1043 or ASTM F 1083, Group 1A, Type A, or aluminum alloy, shall demonstrate the ability to withstand testing in salt spray in accordance with ASTM B 117 as follows:

External: 1,000 hours with a maximum of 5% red rust.

Internal: 650 hours with a maximum of 5% red rust.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Fed. Spec. RR-F-191/3.

162-2.4 GATES. Gate frames shall consist of ~~[galvanized steel pipe] [polymer-coated steel pipe] [aluminum alloy pipe] [composite posts]~~ and shall conform to the specifications for the same material under paragraph 162-2.3. The fabric shall be of the same type material as used in the fence.

162-2.5 WIRE TIES AND TENSION WIRES. Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A 824.

All material shall conform to Fed. Spec. RR-F-191/4.

162-6 MISCELLANEOUS FITTINGS AND HARDWARE. Miscellaneous steel fittings and hardware for use with ~~[zinc-coated] [aluminum-coated] [polymer-coated] [zinc 5% aluminum mischmetal alloy-coated]~~ steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. ~~[All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A 153.] [Miscellaneous aluminum fittings for use with aluminum alloy fabric shall be wrought or cast aluminum alloy.]~~ Barbed wire support arms shall withstand a load of 250 pounds (113 kg) applied vertically to the outermost end of the arm.

162-2.7 CONCRETE. Concrete shall be of a commercial grade with a minimum 28-day compressive strength of 2,500 psi (17 240 kPa) ~~meeting the requirements of Mn/DOT 2461.~~

162-2.8 MARKING. Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

CONSTRUCTION METHODS

162-3.1 CLEARING FENCE LINE. All trees, brush, stumps, logs, and other debris which would interfere with the proper construction of the fence in the required location shall be removed a minimum width of 2-feet (61 cm) on each side of the fence centerline before starting fencing operations. The cost of removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

162-3.2 INSTALLING POSTS. All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within 7 days after the individual post footing is completed.

Should rock be encountered at a depth less than the planned footing depth, a hole 2-inches (50 mm) larger than the greatest dimension of the posts shall be drilled to a depth of 12-inches (300 mm). After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall be made for rock excavation.

162-3.3 INSTALLING TOP RAILS. The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

162-3.4 INSTALLING BRACES. Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.

162-3.5 INSTALLING FABRIC. The wire fabric shall be firmly attached to the posts and braced in the manner shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than 1-inch (25 mm) or more than 4-inches (100 mm) from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched thereon to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6-inches (150 mm) or less.

162-3.6 ELECTRICAL GROUNDS. ~~Electrical grounds shall be constructed [where a power line passes over the fence] at 500-foot (150 m) intervals. [The ground shall be installed directly below the point of crossing.]~~ The ground shall be accomplished with a copper clad rod 8-feet (240 cm) long and a minimum of 5/8-inch (15 mm) in diameter driven vertically until the top is 6-inches (150 mm) below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction.

METHOD OF MEASUREMENT

162-4.1 Chain-link fence will be measured for payment by the linear foot (meter). Measurement will be along the top of the fence from center to center of end posts, excluding the length occupied by gate openings.

Gates will be measured as complete units.

BASIS OF PAYMENT

162-5.1 Payment for chain-link fence will be made at the contract unit price per linear foot (meter).

Payment for driveway or walkway gates will be made at the contract unit price for each gate.

The price shall be full compensation for furnishing all materials, and for all preparation, erection, and installation of these materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item F-162-5.1	14' Wide x 6' Double Leaf Manual Gate - Per Each
Item F-162-5.2	6' Chain Link Fence w/ 3 Strands Barbed Wire - Per Linear Foot
Item F-162-5.3	10' Chain Link Fence w/ 3 Strands Barbed Wire- Per Linear Foot

Item F-162-5.4	14' Wide x 10' Double Leaf Manual Gate- Per Each
Item F-162-5.5	Pedestrian Gate 10' Height- Per Each

MATERIAL REQUIREMENTS

ASTM A 121	Zinc-Coated (Galvanized) Steel Barbed Wire
ASTM A 123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 392	Zinc-Coated Steel Chain-Link Fence Fabric
ASTM A 491	Aluminum-Coated Steel Chain-Link Fence Fabric
ASTM A 572	High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Steel Quality
ASTM A 653	Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
ASTM A 824	Metallic-Coated Steel Marcellled Tension Wire for Use With Chain Link Fence
ASTM A 1011	Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
ASTM B 117	Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM B 221	Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire Shapes and Tubes
ASTM B 429	Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM F 668	Poly(vinyl Chloride)(PVC) and other Organic Polymer-Coated Steel Chain-Link Fence Fabric
ASTM F 1043	Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework
ASTM F 1083	Pipe, Steel, Hot-Dipped Zinc-coated (galvanized) Welded, for Fence Structures
ASTM F 1183	Aluminum Alloy Chain Link Fence Fabric
ASTM F 1345	Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Chain Link Fence Fabric
ASTM G 152	Operating Open Flame (Carbon-Arc) Light Apparatus for Exposure of Nonmetallic Materials

ASTM G 153	Operating Enclosed Carbon-Arc Light Apparatus for Exposure of Nonmetallic Materials
ASTM G 154	Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials
ASTM G 155	Operating (Xenon- Arc) Light Apparatus for Exposure of Nonmetallic Materials
FED SPEC RR-F-191/3	Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)
FED SPEC RR-F-191/4	Fencing, Wire and Post, Metal (Chain-Link Fence Accessories)

END OF ITEM F-162

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NOTICE TO ALL BIDDERS:

Prior to submitting bids on any City of Duluth Public Works & Utilities Department – Engineering Division construction project, the bidder must purchase the City of Duluth Public Works & Utility Department – Engineering Division 2009 Edition Standard Construction Specifications book.

The City of Duluth Public Works & Utilities Department – Engineering Division 2009 Edition Standard Construction Specifications book is incorporated by reference and deemed to be a part hereof as if fully incorporated and set forth herein.

SP-1 SCOPE OF WORK

The project scope consists of: Bid Package 1, which includes civil sitework-site utilities, grading, paving and lighting; building structure and enclosure.

SP-2 GOVERNING SPECIFICATIONS

The Minnesota Department of Transportation "Standard Specifications for Construction" (2005 Edition) shall govern except where the 2009 Edition (as amended in January 2010) of the City of Duluth Public Works and Utilities Department Standard Construction Specification has revised, or U.S. Department of Transportation Federal Aviation Administration "Standards for Specifying Construction of Airports" (AC 150/5370-10A) are referenced or specified in the following Special Provisions.

SP-3 (1302) AWARD OF CONTRACT

The provisions of MN/DOT 1302 are changed to read as follows:

The award of Contract, if to be awarded, will be made by Airport Authority Resolution after the opening of proposals to the lowest responsible bidder who complies with all prescribed requirements. The successful bidder will be notified by a "Letter of Intent", mailed to the address shown on his/her proposal, that his/her bid has been accepted subject to execution and approval of the Contract as required by law.

The Letter of Intent will identify the date on which the Airport Authority is expected to approve the Resolution awarding the Contract. Included with the Letter of Intent will be:

- A. Three (3) copies of the pending Contract covering the Project.
- B. A copy of the Performance Bond.
- C. A copy of the Payment Bond.
- D. A copy of a non-collusion affidavit.
- E. A copy of an EEO (Equal Employment Opportunity) affidavit.
- F. Notice of whether an annual Certificate of Insurance is on file or whether Proof of Insurance is needed.

As a condition precedent to approval of a Contract, a foreign or nonresident corporation to whom a Contract is awarded shall furnish proof that it has met all legal requirements for transacting business in the State of Minnesota.

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As a condition precedent to approval of a Contract, a sworn statement shall be filed with the City stating that the persons, firm, association, or corporation to whom the Contract is awarded has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the Contract. This sworn statement shall be in the form of an affidavit executed by, or on behalf of, the successful bidder and sworn to by him before a person who is authorized by the laws of this State to administer oaths. The forms for this affidavit will be furnished to the successful bidder and they shall be properly executed and returned within the period prescribed.

SP-4 (1305) REQUIREMENT OF CONTRACT BOND

The provisions of Mn/DOT 1305 are changed to read as follows:

At the time of the execution of the Contract, the successful bidder shall furnish "Performance Bond" and a "Payment Bond" on City of Duluth forms. Both bonds shall be in amounts equal to the full amount of the contract price.

SP-5 (1306) EXECUTION AND APPROVAL OF CONTRACT

The provisions of MN/DOT 1306 are changed to read as follows:

The three (3) copies of the Contract shall be signed by the successful bidder and returned, together with the Performance Bond and the Payment Bond, non-collusion affidavit, EEO affidavit, and Proof of Insurance, within ten (10) calendar days after the date the "Letter of Intent" has been mailed advising the bidder that his/her bid has been accepted subject to execution and approval of the Contract as required by law.

Notice of approval or disapproval of the Contract and Bonds will be given to the successful bidder by means of a "Notice to Proceed" letter after award by Airport Authority Resolution.

Contract Time shall start ten (10) calendar days after the date of award by Airport Authority resolution or on the date specified in the Special Provision modifying 1806, whichever is later. Failure of the bidder to properly execute and return all pertinent items within the prescribed period shall not change the start of Contract Time.

If return of the executed forms within the specified time is impossible due to the absence of one or more of the required signers, an extension of time may be granted by the Authority, provided that satisfactory evidence is furnished that the forms will be executed.

SP-6 (1307) CORRECTION PERIOD

The provisions of Mn/DOT 1307 are changed to include the following provisions:

If within one year after the date of Final Payment (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available to contractor's use by owner is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with written instructions:

- 1) Repair such defective land or areas; or
- 2) Correct such defective work; or
- 3) If the defective work has been rejected by owner, remove it from the project and replace it with work that is not defective, and
- 4) Satisfactorily correct or repair or remove and replace any damage to other work, to the work of others or other land or areas resulting therefrom.

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SP-7 (1507) UTILITY PROPERTY AND SERVICE

Construction operations in the proximity of utility properties shall be performed in accordance with the provisions of Mn/DOT 1507, except as modified below:

Bidders are advised that the following utility companies have existing facilities in the construction area that may be affected by the work under this Contract.

TELEPHONE

Qwest Communications
332 West First Street
Duluth, MN 55802
(218) 723-4210 (Manager)

POWER

Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 722-2641

WATER AND GAS , STORM AND SANITARY SEWER

City of Duluth – Public Works & Utilities
211 City Hall
Duluth, MN 55802
(218) 730-5200

The City's Contractor shall coordinate their work and cooperate with the foregoing utility owners and their forces in a manner consistent with the provisions of Mn/DOT 1507 and the applicable provisions of Mn/DOT 1505.

SP-8 (1706) EMPLOYEE HEALTH AND WELFARE

The Contractor shall not use any motor vehicle equipment on this Project having an obstructed view to the rear unless:

- A) The vehicle has a reverse signal alarm which is audible above the surrounding noise level; or
- B) The vehicle is backed up only when an observer signals that it is safe to do so. A \$50.00 penalty (per incident) shall be assessed against the Contractor each time failure to comply with these backup requirements is observed on the project site.

SP-9 (1710) TRAFFIC CONTROL DEVICES

All traffic control devices and methods shall conform to the Minnesota Manual on Uniform Traffic Control Devices (MMUTCD), Minnesota Standard Signs Manuals Parts I, II, and III, the Traffic Engineering Manual Chapter 8 Appendixes 8-2.-1 and 8.3-1.

Payment for all signs, pavement markings and removal of signs, and pavement markings required for phasing of traffic flow shall be paid under Item 112 – SP 48.3 Traffic Control/Signing Allowance.

SP-10 (1803) PROSECUTION OF WORK

The provisions of Mn/DOT 1803 are hereby modified in accordance with the following:

A "Progress Schedule" (Bar Chart or Critical Path Diagram), referred to in Mn/DOT 1803.1 will be required on this Project. The Contractor shall furnish the Engineer with the schedule at or before the preconstruction conference.

The Engineer shall have the authority to direct the order in which work at the various locations is performed.

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SP-11 (1803) EROSION CONTROL

Mn/DOT (2005 Edition) Standard Specifications 1803.5, Erosion Control, shall apply as modified below:

Along with the City of Duluth, the contractor will be co-permittee for the MPCA NPDES stormwater construction permit for this project – the Contractor's signature on the permit is required.
Submit Initial Erosion Control (EC) schedule at or before Pre-Construction meeting.

SP-12 (1806) DETERMINATION OF CONTRACT TIME

The Contract Time shall be in accordance with **General Provisions 80-07 Determination and Extension of Contract Time and Work Scope Section 01014** and the following:

The Notice to Proceed for Construction is expected to be issued in July, 2010.

All work required under this Contract shall be completed within Work Scope Section 01014.

SP-13 (1807) FAILURE TO COMPLETE THE WORK ON TIME

Charges equal or greater than that specified in Mn/DOT 1807 will be assessed for failure to complete all the work on time as specified in **General Provisions 80-08 Failure to Complete on Time** and the following:

- a. \$3,000 per calendar day.

Decisions pertaining to restricting runway use, closing runways and reopening runways shall be made solely by the Duluth Airport Authority in accordance with the FAA guidelines for operational safety on airports during construction (AC 150/5370-2E).

SP-14 (1717) AIR, LAND AND WATER POLLUTION

SP-14.1 Air, Land, and Water Pollution will be executed in accordance with the provisions of MnDOT 1717 and the following-

The Contractor shall assist the Engineer with completion of a Stormwater Pollution Prevention Plan (SWPPP) as contained in the Contract Documents. The plan shall be in strict compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et seq.), 40 CFR 122, 123, and 124, as amended, et seq.; Minn. Stat. chs. 115 and 116, as amended, Minn. R. chs. 7001 and 7090 (MPCA General Permit for Stormwater Discharges associated with Construction Activity under the NPDES, Permit No: MN R100001).

The Contractor is required to complete and submit the required Application for the Permit prior to startup of construction activities for this project. The \$400.00 Application Fee shall be paid by the Contractor. The cost to develop the Application and obtaining approval shall be a subsidiary obligation to other items of work.

If construction is suspended, the Contractor shall inspect, maintain and operate temporary and permanent pollution control features during such suspension. If suspension is part of the project phasing and sequencing plan, or if the suspension is requested by the Contractor, the Contractor shall not be paid additional or separate compensation for the Contractor to inspect, maintain and operate the pollution control facilities.

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The Contractor is also responsible for the removal of all temporary erosion/pollution control facilities and the restoration of those sites. This work will include the repair of any trenching for silt fence, removal of all silt build-up, the removal of fencing, barriers and silt bales and the associated stakes and appurtenances, and the placing of seeding or sodding to restore those sites. All inlets, catch basins and manholes constructed for this project shall be cleaned and the new drainage pipes flushed. All materials taken from the facilities or flushed from the new piping system shall be collected by the Contractor and disposed of off site.

SP-15 USE OF WATER FROM CITY HYDRANTS

All water taken from City hydrants, except for that water related to water main construction shall be metered and a charge will be made for the amount used. The Contractor must make arrangements with the Public Work and Utilities Department to get the necessary permit, valve and meter, prior to using the hydrant for drawing water.

SP-16 PUBLIC WORKS & UTILITIES DEPARTMENT REGULATIONS

Prior to beginning work, the contractor shall acquaint himself with all regulations and requirements of the City of Duluth Public Works & Utilities Department that may apply to the proposed work. All work shall be open at all times to inspection by the Public Works & Utilities Department. The Contractor shall notify the Public Works & Utilities Department not less than two working days before beginning construction of mains. The operations of all valves on the existing distribution systems shall be performed only by the Public Works & Utilities Department. The Contractor shall give 24 hours notice to the Public Works & Utilities Department of the need for the operation of any existing valves.

SP-17 MATERIALS AND WORK TO BE FURNISHED BY THE PUBLIC WORKS & UTILITIES DEPARTMENT

The Public Works & Utilities Department will furnish the following materials and work on this project at no cost to the Contractor. Contractor is to excavate and backfill in order to allow the Department to perform said work.

- A) Shut down water and gas mains and services as necessary to allow contractor to furnish and install water and gas connections.
- B) Sample and test for bacteria.
- C) In the case of failed tests, the City reserves the right to charge the Contractor for retests.

SP-18 INSPECTION OF MATERIALS

All pipe, fittings, valves, hydrants and other materials to be used in the construction shall be inspected by the Engineer prior to installation in the project. The Contractor shall furnish any necessary labor or equipment requested by the Engineer for the inspection. No pipe, fittings, valves, hydrants or other material shall be placed until they have been inspected and approved.

Inspection and approval of the materials by the Engineer will not relieve the contractor of his subsequent responsibility regarding the materials. Any defective materials shall be removed and replaced by the Contractor at his own expense even though the materials have been approved prior to installation.

SP-19 DRUG AND ALCOHOL TESTING FOR GAS WORK

This contract will require compliance with Federal regulations which required pre-employment, post accident, and reasonable cause drug and alcohol testing of employees, contractors and other workers. Random drug testing shall also be required under this contract.

Prior to the commencement of construction, contractors/vendors performing work covered by the DOT drug and alcohol testing rules as set forth in 49 CFR Part 199 and Part 40, shall provide the following documentation for review for compliance with RSPA/DOT regulations:

- 1) Anti-Drug Plan and any addenda issued thereto.
- 2) Alcohol Misuse Prevention Plan and any addenda issued thereto.
- 3) Minnesota Office of Pipeline Safety Intrastate Anti-Drug and Alcohol Misuse Prevention Self-Assessment Form.
- 4) The name and job title of the employees performing any work or functions covered by Part 199.

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SP-20 OPERATOR QUALIFICATION FOR GAS WORK

This contract will require contractor personnel performing covered tasks on the City of Duluth's gas system to be qualified before performing any of the covered tasks identified in the Operator Qualification Contractor Covered Tasks list included in these Specification documents. Prior to the commencement of construction, contractors/vendors performing any of these covered tasks shall submit their Operator Qualification Plan and a list of employees' names, job titles and covered tasks to be performed under this contract to the Engineer for approval.

SP-21 (1908) FINAL PAYMENT

Final Payment shall be made in accordance with the provisions of the specifications of MN/DOT 1908 and the following:

The final estimate will show the balance due the Contractor after making all legal and specified forfeitures and deductions.

Additional Condition for Final Payment

The Contractor and all of its subcontractors shall comply with Minnesota Statutes, Section 290.92. Pursuant to Minnesota Statutes, Section 270C.66, the Owner will not issue final payment to the Contractor prior to receipt of an "Affidavit For Obtaining Final Settlement of Contractor With the State of Minnesota and Any of its Political or Governmental Subdivisions" (Form IC-134) from the Contractor and from each of the Contractor's subcontractors (if any). The Contractor and subcontractors shall submit to the Owner original copies of Form IC-134 already fully executed by the Commissioner of Revenue of the State of Minnesota. It shall be the responsibility of the Contractor to ensure that all of the Affidavits herein required are submitted to the Owner.

SP-22 (2104.501) REMOVE PIPE SEWER (Items 12 and 13 Storm and Sanitary)

SP-22.1 The contractor shall provide all labor, equipment and materials necessary to remove existing pipe sewers. Item REMOVE PIPE SEWER shall include apron section removal. Item REMOVE PIPE SEWER shall include pipe bulkheads and or manhole/catchbasin repair as required. Contractor shall backfill and compact all REMOVE PIPE SEWER trenches with Granular Borrow (MnDot 3149.2B1) which will be incidental to REMOVE PIPE SEWER. The contractor shall dispose of removed materials at a publicly controlled dumping site or some other established off-site engineer approved facility.

SP-22.2 Measurement will be made by the lineal foot of REMOVE PIPE SEWER removed as specified.

SP-22.3 Payment for each lineal foot of REMOVE PIPE SEWER will be made under 2104.501 REMOVE PIPE SEWER at the contract price which shall be compensation in full for constructing REMOVE PIPE SEWER as specified.

SP-23 (2104.509) REMOVE MANHOLE OR CATCH BASIN

SP-23.1 The contractor shall provide all labor, equipment and materials necessary to remove existing manholes or catchbasins. Contractor shall backfill and compact all REMOVE MANHOLE OR CATCHBASIN voids with granular borrow (MnDot 3149.2B1) which will be incidental to REMOVE PIPE SEWER. The contractor shall dispose of removed materials at a publicly controlled dumping site or some other established engineer approved facility.

SP-23.2 Measurement will be made by the number of each REMOVE MANHOLE OR CATCH BASIN removed as specified.

SP-23.3 Payment for each REMOVE MANHOLE OR CATCH BASIN will be made under 2104.509 REMOVE MANHOLE OR CATCH BASIN at the contract price for each which shall be compensation in full for REMOVE MANHOLE OR CATCH BASIN as specified.

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SP-24 (2503.511) CORRUGATED HDPE PIPE SEWER

SP-24.1 The contractor shall provide all labor, equipment and materials necessary to install CORRUGATED HDPE PIPE SEWER. Item CORRUGATED HDPE PIPE SEWER shall include Pipe Sewer Excavation, 6" of Aggregate Bedding (MnDot 3149.2H) and Granular Backfill (MnDot 2451, 3149.2D 7% Mod) which shall be considered incidental to item CORRUGATED HDPE PIPE SEWER. Aggregate Bedding shall be used under all CORRUGATED HDPE PIPE SEWER and shall extend from 6" under the pipe to the spring line of the CORRUGATED HDPE PIPE SEWER. Granular Backfill shall be used in all CORRUGATED HDPE PIPE SEWER trenches from the spring line of the CORRUGATED HDPE PIPE SEWER to the bottom of the proposed pavement section and shall be constructed in accordance with the City of Duluth 2009 Edition Standard Construction Specifications 2105 Excavation, Backfill and Compaction for Utilities. Any required bends or fittings shall be paid for as Lineal Foot of CORRUGATED HDPE PIPE SEWER.

SP-24.2 Measurement will be made by each lineal foot of CORRUGATED HDPE PIPE SEWER constructed as specified.

SP-24.3 Payment for each lineal foot of CORRUGATED HDPE PIPE SEWER will be made under 2503.511 CORRUGATED HDPE PIPE SEWER at the contract price which shall be compensation in full for constructing CORRUGATED HDPE PIPE SEWER as specified.

SP-25 (2503) 8 INCH PVC SEWER SERVICE PIPE

This work shall consist of furnishing and installing 8 inch PVC Sewer Pipe (SDR 35) complete in place including excavation, fittings, adapters, and construction joints from 4 feet beyond the wall of the pipe sewer to a termination point or connection to an existing service as the Inspector designates in accordance with the applicable provisions of MN/DOT 2503. All pipe and fittings shall be SDR 35 and connections shall be push-on elastomeric joints which are bonded to the inner wall of the gasket recess of the bell socket.

Sewer service connections shall be installed as provided for in the contract and as may be directed by the Engineer. The sewer service connections and pipelines shall be installed in conformance with all applicable requirements of the main sewer installation. The Engineer, with the assistance of the Contractor, shall keep accurate records of all service installations as to the type, location and elevation at the point of connection (wye), property line and termination, etc. The service installation shall not be backfilled until all required information has been obtained and recorded. Unless otherwise specified, service pipe shall be installed at right angles to the main sewer and at the straight line and grade to the property line. The standard and minimum grade shall be a uniform rise of 1 inch in 4 feet (2%) for sanitary service lines. Pipe bends shall be provided as necessary to bring the service lines to the proper location and grade. Pipe bends shall not exceed 22-½ degrees without approval of the Engineer.

Measurement will be made by length along the line of the sewer service pipe to the nearest 0.5 feet.

Payment for sewer service pipe will be made under item 2503.511, 8 inch PVC Pipe Sewer, at the Contract price per foot, which shall be compensation in full for all costs of furnishing and installing the sewer service pipe complete in place as specified.

SP-26 (2503.602) CONNECT TO EXISTING STORM MANHOLE

SP-26.1 The contractor shall provide all labor, equipment and materials necessary to provide a water tight connection between proposed storm sewer pipe and existing storm sewer manhole.

SP-26.2 Measurement will be made by the number of each CONNECT TO EXISTING STORM MANHOLE constructed as specified.

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SP-26.3 Payment for each CONNECT TO EXISTING STORM MANHOLE will be made under 2503.602 CONNECT TO EXISTING STORM MANHOLE at the contract price for each which shall be compensation in full for constructing CONNECT TO EXISTING STORM MANHOLE as specified.

SP-27 **(2503.602) CONNECT TO EXISTING SANITARY SEWER**

SP-27.1 The contractor shall provide all labor, equipment and materials necessary to provide a water tight connection between proposed sanitary sewer pipe and existing sanitary sewer manhole.

SP-27.2 Measurement will be made by the number of each CONNECT TO EXISTING SANITARY SEWER constructed as specified. Multiple connections to the same structure will be paid as one unit.

SP-27.3 Payment for each CONNECT TO EXISTING SANITARY SEWER will be made under 2503.602/00040 CONNECT TO EXISTING SANITARY SEWER at the contract price for each which shall be compensation in full for constructing CONNECT TO EXISTING SANITARY SEWER as specified.

SP-28 **2503 CURED-IN-PLACE PIPE LINING**

SP-28.1 Furnish all labor, materials, equipment, and incidentals required to install and test cured-in-place (CIPP) pipe lining and appurtenances complete as shown on the Drawings and as specified in City of Duluth Standard Specifications. Cured-in-place pipe lining is an acceptable procedure for lining the sewers where specified on the Drawings.

SP-28.2 Measurement will be made by each linear foot of pipe lined.

SP 28.3 Payment for **CURED-IN-PLACE PIPE LINING** shall be made under Item 2503.603/01308 LINING SEWER PIPE 8".

SP-29 **2503 PLUG, FILL & ABANDON PIPE**

SP-29.1 This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable fill, and all other materials required to properly abandon existing storm pipe.

The Contractor shall submit, to the Engineer, a mix design including the proportions and source of materials, admixtures, and dry cubic yard (cubic meter) batch weights. The mix shall contain a minimum of 50 pounds of cement and 250 pounds fly ash per cubic yard (30 kg of cement and 148 kg of fly ash per cubic meter), with the remainder of the volume composed of sand, water, and any approved admixtures.

a. Compressive Strength. CLSM shall be designed to achieve a 28-day compressive strength of 100 to 200 psi (690 to 3 680 kPa) when tested in accordance with ASTM C 39. There should be no significant strength gain after 28 days. Test specimens shall be made in accordance with ASTM C 31 except that the samples will not be rodded or vibrated and shall be air cured in their molds for the duration of the cure period.

b. Consistency. Consistency of the fresh mixture shall be such that the mixture may be placed without segregation. A desired consistency may be approximated by filling an open-ended 3-inch (75 mm) diameter cylinder, 6-inches (150 mm) high to the top, with the mixture and the cylinder immediately pulled straight up. The correct consistency of the mixture will produce an approximate 8-inch (205 mm) diameter circular-type spread without segregation. Adjustments of the proportions of materials should be made to achieve proper solid suspension and flowable characteristics, however the theoretical yield shall be maintained at one cubic yard (cubic meter) for the given batch weights.

SP-29.2 Measurement will be made by each linear foot of pipe plugged, filled and abandoned.

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SP 29.3 Payment for PLUG, FILL & ABONDEN PIPE shall be made under Item 2503.603/00045 PLUG, FILL & ABONDEN PIPE.

SP-30 (2504) WATER MAIN AND SERVICE LINE INSTALLATION

All water main and service lines shall be installed per the City of Duluth, 2009 edition, Standard Construction Specifications.

Method of Measurement

Water main shall be measured by the linear foot as specified in place, complete and accepted. All excavation, backfill, compaction, fittings, testing, connections, thrust blocking and valves as per plan shall be incidental to the water main linear foot measure to the nearest 0.5 foot.

Each hydrant and valve shall be measured as one unit and be measured per each unit.

Basis of payment

Item 2504.602 – Relocate Hydrant and Valve – Each
Item 2504.602 - Hydrant and Valve – Each
Item 2504.602 - Gate and Valve – Each
Item 2504.603 - 4" Water Main Ductile Iron CL 52– Linear Foot
Item 2504.603 - 6" Water Main Ductile Iron CL 53 – Linear Foot
Item 2504.603 – 8" Water Main Ductile Iron LC 53 – Linear Foot

SP-31 (2505) GAS MAIN

Gas main construction shall be performed in accordance with the provisions of Section 04.10 of Appendix A, 2007 Standard Specifications of High Pressure Gas Mains, Transmission Line, and Service Installation, Welding Qualifications and Qualifications for joining PE Pipe, included in these specifications, except as modified herein.

SP-31.1 Work by Contractor

The Contractor can perform the following work under this contract if the Contractor can provide operator qualification documentation for the individuals performing these covered tasks:

- A) Tapping polyethylene mains not in service.
- B) Tapping polyethylene mains in service with branch connections less than 2 inches in diameter.
- C) Squeezing off polyethylene mains and services.

SP-31.2 Construction Requirements

- A) Adjust Valve Box
This work shall consist of adjusting existing gas valve boxes to new surface elevations without changing the elevation of the valves. The work shall be performed in conformance with the water main Section 2504 WATER MAIN AND SERVICE LINE INSTALLATION, of these Specifications.
- B) Testing Gas Main
Pressure Testing of gas main shall comply with Section 04.13.9, Testing High Pressure Gas Mains and Services, of the Standard Specifications for High Pressure Gas Mains, Transmission Line, and Service Installation, Welding Qualifications and Qualifications for Joining PE Pipe, included in these specifications.
- C) Testing Tracer Wire Continuity
Test tracer wire continuity after installation of pipe. The Contractor shall be responsible for the installation of at least one locating wire with electrical continuity throughout the entire length.

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D) Insertion method

Where called for in the Plans, pipeline shall be installed into new or existing pipeline. Procedures and conditions, including the necessary excavations, shall be complied with as indicated in the Plans or Special Provisions and, where applicable, to these standard specifications.

SP-31.3 **Measurement of Payment**

All costs of furnishing and installing gas main between the locations shown on the plans or as directed by the Engineer; including gas main pipe, appurtenances, bedding and cover, locating wire, excavation, and testing; shall be paid for at the contract unit price per linear foot for (size) PE Gas Main SDR 11.5. Item 2505.603

SP-32 **(2405.603) 4" PVC IRRIGATION CONDUIT-SDR 35**

SP-32.1 The contractor shall provide all labor, equipment and materials necessary to install 4" PVC IRRIGATION CONDUIT-SDR 35. Contractor shall install locating wire with 4" PVC IRRIGATION CONDUIT-SDR 35 as specified in the City of Duluth 2009 Edition Standard Construction Specifications 2503/2504 Locating Wire which shall be considered incidental to item 4" PVC IRRIGATION CONDUIT-SDR 35. Locating Wire installation shall include Locating Wire, Locating (Tracer) Boxes at each end of pipe and Locating Wire Testing. The Contractor shall Mandrel each individual conduit. A Flexible Mandrel, not more than 1/4-Inch smaller than the bore of the conduit shall be pushed or pulled through each conduit. The Mandrel shall have a leather or rubber gasket slightly larger than the conduit hole. Mandrel testing of the 4" PVC IRRIGATION CONDUIT-SDR 35 shall be done after completion of the Aggregate Base Class 5 and before installation of the Bituminous Pavement. Conduit Mandrel and Locating Wire acceptance testing shall be considered incidental to item 4" PVC IRRIGATION CONDUIT-SDR 35.

SP-32.2 Measurement will be made by the lineal foot of 4" PVC IRRIGATION CONDUIT-SDR 35 constructed as specified.

SP-32.3 Payment for each 4" PVC IRRIGATION CONDUIT-SDR 35 will be made under 2405.603 4" PVC IRRIGATION CONDUIT-SDR 35 at the contract price for each which shall be compensation in full for constructing 4" PVC IRRIGATION CONDUIT-SDR 35 as specified.

SP-33 **(2506.502) CONSTRUCT DRAINAGE STRUCTURE**

SP-33.1 The contractor shall provide all labor, equipment and materials necessary to install CONSTRUCT DRAINAGE STRUCTURE as specified. CONSTRUCT DRAINAGE STRUCTURE shall include 6" of Aggregate Bedding (MnDot 3149.2H), Granular Backfill (MnDot 2451, 3149.2D 7% Mod) and City of Duluth Ring and Casting STRM-1 or STRM-3 which shall be considered incidental to item CONSTRUCT DRAINAGE STRUCTURE. Granular Backfill shall extend from the top of the Aggregate Bedding to the bottom of the proposed pavement section and shall be constructed in accordance with the City of Duluth 2009 Edition Standard Construction Specifications 2105 Excavation, Backfill and Compaction for Utilities.

SP-33.2 Measurement will be made by the number of each CONSTRUCT DRAINAGE STRUCTURE installed as specified.

SP-33.3 Payment for each CONSTRUCT DRAINAGE STRUCTURE will be made under 2506.502 CONSTRUCT DRAINAGE STRUCTURE at the contract price for each which shall be compensation in full for installing CONSTRUCT DRAINAGE STRUCTURE as specified.

SP-34 **(2511.501) RANDOM RIPRAP CLASS IV**

SP-34.1 RANDOM RIPRAP CLASS IV shall include Type IV Geotextile Filter Material which will be considered incidental to item RANDOM RIPRAP CLASS IV.

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SP-34.2 Measurement will be made by the Cubic Yards of placed and engineer approved RANDOM RIPRAP CLASS IV in place as specified.

SP-34.3 Payment for each Cubic Yard of RANDOM RIPRAP CLASS IV will be made under 2511.501 RANDOM RIPRAP CLASS IV at the contract price for Cubic Yard which shall be compensation in full for installing RANDOM RIPRAP CLASS IV as specified.

SP-35 (2573.530) STORM DRAIN INLET PROTECTION

SP-35.1 The contractor shall provide STORM DRAIN INLET PROTECTION device(s) for all surface drains that receive stormwater runoff from the project site. Payment shall be for furnishing, installing, and maintenance of the devices for each storm drain location for the duration of the project. Contractor shall select STORM DRAIN INLET PROTECTION device most appropriate for inlet location and phase of project.

SP-35.2 Measurement will be made by the number of each STORM DRAIN INLET PROTECTION devices installed as specified.

SP-35.3 Payment for each STORM DRAIN INLET PROTECTION will be made under 2573.530 STORM DRAIN INLET PROTECTION at the contract price for each which shall be compensation in full for installing and maintaining STORM DRAIN INLET PROTECTION as specified.

SP-36 (2575.502) SEED MIXTURE TYPE 250

SP-36.1 The contractor shall apply SEED MIXTURE TYPE 250 at a rate of 125 lbs per acre. .

SP-36.2 Measurement will be made by the number of pounds of SEED MIXTURE TYPE 250 installed as specified.

SP-36.3 Payment for each SEED MIXTURE TYPE 250 will be made under 2575.502 SEED MIXTURE TYPE 250 at the contract price for each which shall be compensation in full for installing SEED MIXTURE TYPE 250 as specified.

SP-37 (2573.604) ROCK CONSTRUCTION ENTRANCE

SP-37.1 The contractor shall provide all labor, equipment and materials necessary to construct, maintain and remove ROCK CONSTRUCTION ENTRANCE as per detail and as directed by Engineer.

SP-37.2 Measurement will be made by the square yards of ROCK CONSTRUCTION ENTRANCE constructed, maintained and removed as specified.

SP-37.3 Payment for ROCK CONSTRUCTION ENTRANCE shall be made under Item 2573.604 ROCK CONSTRUCTION ENTRANCE at the contract price per square yard which shall be compensation in full for all costs of furnishing, installing, maintaining, and removing ROCK CONSTRUCTION ENTRANCE as specified.

SP 38 INSTALL TYPE 'C' LIGHT W/ FOUNDATION

SP-38.1 Lighting pole shall be a Kim Lighting Model No. KSS30-5180/SA, or approved equal, with a standard color finish to be confirmed before placing order. Pole shall come complete with breakaway banner arm and all necessary adapters, and arms to connect the proposed Phillips Master Elite 210 watt 277 volt -Clear fixture, or approved equal.

Busman HEBAAs/fuseholders/fuses, or approved equal, shall be provided and installed in the base of each light pole.

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SP-38.2 Measurement will be made by each unit of entrance lighting unit Type A with foundation provided and installed.

SP 38.3 Payment for INSTALL TYPE 'C' LIGHT W/ FOUNDATION FOUNDATION shall be made under Item SP 38.3.

SP-39 **INSTALL TYPE 'A2' LIGHT W/ FOUNDATION**

SP-39.1 The contractor shall provide all labor, equipment and materials necessary to supply, and install.

Lighting pole shall be a Kim Lighting Model No. KSS30-5180/SB, or approved equal, with a standard color finish to be confirmed before placing order. Pole shall come complete with breakaway banner arm and all necessary adapters, and arms to connect the proposed Phillips Master Elite 210 watt 277 volt -Clear fixture, or approved equal. The Type B Lighting units shall have two, Phillips Master Elite 210 watt 277 volt-Clear fixtures, or approved equal, mounted on one pole 180 degrees apart from another.

Busman HEBAAs fuseholders/fuses, or approved equal, shall be provided and installed in the base of each light pole.

SP-39.2 Measurement will be made by each unit of lighting unit Type B and foundation provided and installed.

SP-39.3 Payment for INSTALL TYPE 'A2' LIGHT W/ FOUNDATION shall be made under Item SP 39.3.

SP-40 **RELOCATE CHECKPOINT ACCESS & CONTROL SYSTEM FOR EAST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP**

SP-40.1 The contractor shall provide all labor, equipment and materials necessary to relocate controls, and install new pieces of equipment.

The existing card access at the east basement entrance is to be removed from its existing location and shall be relocated into the tunnel area adjacent to the existing ticket dispenser. The card access shall be installed to control the operation of the garage door on the east basement entrance.

If phasing requires two way traffic in the tunnel area, a control loop, or access control must be added on the interior side of the basement door, as well as a red beacon installed to indicate incoming traffic must stop to allow outgoing traffic the right of way.

SP-40.2 Measurement will be made by the lump sum.

SP-40.3 Payment for RELOCATE CHECKPOINT ACCESS & CONTROL SYSTEM FOR EAST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP shall be made under Item SP 40.3.

SP-41 **PROVIDE AND INSTALL CHECKPOINT ACCESS & CONTROL SYSTEM FOR WEST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP**

SP-41.1 The contractor shall provide all labor, equipment and materials necessary to install new pieces of equipment.

Currently there are not controls on the outside of the west basement entrance (exit only at this time.) If construction phasing requires traffic to enter the west basement access a checkpoint access must be installed in the tunnel area.

If phasing requires two way traffic in the tunnel area, a red beacon shall be installed to indicate incoming traffic must stop to allow outgoing traffic the right of way.

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SP-41.2 Measurement will be made by the lump sum.

SP-41.3 Payment for PROVIDE AND INSTALL CHECKPOINT ACCESS & CONTROL SYSTEM FOR WEST BASEMENT ACCESS W/ NEW RED BEACON LIGHT & LOOP shall be made under Item SP 41.3.

SP-42 SALVAGE GATE OPERATOR

SP-42.1 The contractor shall provide all labor, equipment and materials necessary to salvage existing gate arms, and gate operators. The contractor shall then coordinate with the Owner as to where the salvaged equipment shall be placed.

SP-42.2 Measurement will be made by each unit of gate operator salvaged.

SP 42.3 Payment for SALVAGE GATE OPERATOR shall be made under Item SP 42.3.

SP-43 SALVAGE TICKET DISPENSER

SP-43.1 The contractor shall provide all labor, equipment and materials necessary to salvage ticket dispensers (Ticket Spitters). The contractor shall then coordinate with the Owner as to where the salvaged equipment shall be placed.

SP-43.2 Measurement will be made by each unit of ticket dispenser salvaged.

SP 43.3 Payment for SALVAGE TICKET DISPENSER shall be made under Item SP 43.3.

SP-44 REMOVE LIGHT AND BASE

SP-44.1 The contractor shall provide all labor, equipment and materials necessary to remove and dispose off site all parking lot light fixtures shown on the plans for demolition.

SP-44.2 Measurement will be made by each lighting unit removed.

SP 44.3 Payment for REMOVE LIGHT AND BASE shall be made under Item SP 44.3.

SP-45 WALL & SMALL POST MOUNTED LIGHT REMOVAL

SP-45.1 The contractor shall provide all labor, equipment and materials necessary to remove and dispose off site all fixtures mounted on wall or on posts with small foundations (less than 18" diameter) shown on the plans for demolition.

SP-45.2 Measurement will be made by each lighting unit removed.

SP 45.3 Payment for WALL & SMALL POST MOUNTED LIGHT REMOVAL shall be made under Item SP 45.3.

SP-46 SITE POWER ALLOWANCE

SP-46.1 The contractor shall include a \$35,000.00 allowance to be used to pay for work done by Minnesota Power which shall include the relocation of the power service, and connections as shown on plans and directed by the engineer.

SP-46.2 Measurement will be made by the actual amount of the invoice from Minnesota Power. Any portion of the allowance amount not needed for reimbursement for work done by Minnesota Power will not be paid to the Contractor.

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SP-46.3 Payment for SITE POWER ALLOWANCE shall be made under Item SP 46.3.

SP-47 **COMMUNICATIONS ALLOWANCE**

SP-47.1 The contractor shall include a \$12,000.00 allowance to be used to pay for work done by Qwest which shall include the relocation of the communications service, and connections as shown on plans and directed by the engineer.

SP-47.2 Measurement will be made by the actual amount of the invoice from Qwest. Any portion of the allowance amount not needed for reimbursement for work done by Qwest will not be paid to the Contractor.

SP-47.3 Payment for COMMUNICATIONS ALLOWANCE shall be made under Item SP 47.3.

SP-48 **TRAFFIC CONTROL/SIGNING ALLOWANCE**

SP-48.1 The contractor shall submit a detailed traffic control plan for each phase of construction to be reviewed by the engineer. The plan shall include details of vehicle traffic, pedestrian traffic and display how access will be maintained to the existing terminal and the existing terminal basement parking. The contractor shall furnish, install, and maintain all traffic control devices required in their submitted and approved traffic control plan. ***The contractor shall include a \$50,000 allowance to be used for pay for developing the traffic control plan for the engineer's approval, implementing and maintaining the approved traffic control plan, and furnishing and installation of traffic control devices.***

SP-48.2 Measurement will be made by each unit of traffic control device provided and installed.

SP-48.3 Payment for TRAFFIC CONTROL/SIGNING ALLOWANCE shall be made under Item 48.3.

SP-49 **TERMINAL BUILDING WORK**

SP-49.1 The contractor shall provide all labor, equipment and materials necessary to complete all work associated with the following specifications:

01732 – Selective Demolition, 02220 – Building Earthwork, 07131 – Self-Adhering Sheet Waterproofing, 07210 Thermal Insulation, and 15150 – Plumbing Sanitary, Vent and Storm Drainage Piping.

The contractor shall provide all review these specifications thoroughly and provide the required signed submittals.

SP-49.2 Measurement will be made by the lump sum.

SP-49.3 Payment for TERMINAL BUILDING WORK shall be made under Item 49.3.

SP-50 **PRIVATE UTILITY LOCATING SERVICE**

SP-50.1 The contractor shall retain a certified utility locating service to locate all private (DAA owned) utilities within the project limits.

SP-50.2 Measurement of the item PRIVATE UTILITY LOCATING SERVICE will be on a lump sum basis.

SP-50.3 Payment for PRIVATE UTILITY LOCATING SERVICE shall be made under Item SP 50.3.

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SP-51 (2360) BITUMINOUS PAVING

The provisions of Mn/DOT 2360 regarding incentive pay shall not apply to any of the items of work under this Contract. No payment above the actual amount of tons placed and accepted will be paid under this contract.

SP-52 (1903) INCREASED OR DECREASED QUANTITIES

The provisions of Mn/DOT 1903 regarding overruns and underruns shall not apply to any of the items of work under this Contract.

SP 53

THE VERSIONS OF THE FORMS AND REGULATIONS/RULES/STATUTES and INTERPRETATION ATTACHED TO THE CONTRACT WILL BE CONTROLLING. HARD COPIES OF ALL FORMS ARE AVAILABLE AT THE ENGINEERING DIVISION, EXCEPT THE NON-COLLUSION AND AFFIRMATIVE ACTION POLICY STATEMENT, WHICH ARE AVAILABLE AT THE CITY OF DULUTH PURCHASING DEPARTMENT.

Item listing from web:

FORM	WEB SITE
Affidavit of Non-Collusion (required by awarded contractor only)	www.duluthmn.gov/engineering/construction_documents.cfm
Affirmative Action Policy Statement/Certificate - EEO (required by awarded contractor only)	www.duluthmn.gov/engineering/construction_documents.cfm
Certified Payroll Form WH347 (front side only)	www.dol.gov/esa/whd/forms/WH347.pdf
Contractor's Haul Route	www.duluthmn.gov/engineering/construction_documents.cfm
Debarment Notice 060508	www.duluthmn.gov/engineering/construction_documents.cfm
IC-134 form	www.taxes.state.mn.us/forms/ic134.pdf
IC-134 on-line submittal (click: Submit Contractor Affidavit; r-side of screen)	www.mndor.state.mn.us/
MN Rules 5200.1105 & .1106	www.duluthmn.gov/engineering/construction_documents.cfm
MN Statutes 177.41 to 177.44	www.duluthmn.gov/engineering/construction_documents.cfm
MNOPS Intrastate Anti-Drug/Alcohol Misuse Prev Asmt (gas projects only)	www.duluthmn.gov/engineering/construction_documents.cfm
Notice to Bidders Prompt Payment to Subs (city funded projects only)	www.duluthmn.gov/engineering/construction_documents.cfm
Notice to Bidders Prompt Payment to Subs (state & federal funded projects only)	www.duluthmn.gov/engineering/construction_documents.cfm
Notice to Bidders Traffic Control 11/29/99 (federal funded projects only)	www.duluthmn.gov/engineering/construction_documents.cfm
One-Call Instructions	www.duluthmn.gov/engineering/construction_documents.cfm
Operator Qualification Contractor Covered Tasks (gas projects only)	www.duluthmn.gov/engineering/construction_documents.cfm
Prevailing Wage Statements 3/16/98 & 6/26/01	www.duluthmn.gov/engineering/construction_documents.cfm
Request to Sublet TP-21834 (5-18-07)	www.duluthmn.gov/engineering/construction_documents.cfm
Statement of Compliance Form 21658 (03-01) (city and state funding only)	www.duluthmn.gov/engineering/construction_documents.cfm
Supplemental General Conditions Part II 3/4/09	www.duluthmn.gov/engineering/construction_documents.cfm
Truck Rental Rates 5/01/08 (state funded projects only)	www.dot.state.mn.us/const/labor/contractdocuments.html
Mn/DOT forms:	
Month End Trucking Report TP90550 (7-05) (state funded projects only)	www.dot.state.mn.us/const/labor/lcuforms.html
Month-End Trucking Report Statement of Compliance TP90551 (7-05) (state funded projects only)	www.dot.state.mn.us/const/labor/lcuforms.html
HUD forms: (for HUD/CDBG and Federal funding)	
Certified Payroll Form WH347	www.dol.gov/esa/whd/forms/WH347.pdf
U S DOL Statement of Compliance	www.dol.gov/esa/whd/forms/WH347.pdf
Fringe Benefit Form required by City of Duluth – use second page	www.dot.state.mn.us/const/labor/contractdocuments.html



**DULUTH INTERNATIONAL AIRPORT
NEW PASSENGER TERMINAL, LOOP ROAD,
AND PARKING LOTS**

**DULUTH AIRPORT AUTHORITY
DULUTH, MINNESOTA**

**STORM WATER POLLUTION
PREVENTION PLAN**

KOA PROJECT NO. 091046

May 5, 2009

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NPDES/SDS General Permit (30 Pages)
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1) INTRODUCTION

This Storm Water Pollution Prevention Plan (SWPPP) has been developed as part of the MPCA NPDES/SDS Construction Permit requirements for construction activities disturbing greater than one acre of ground surface. The purpose of the SWPPP is to maximize the potential benefits of pollution prevention and sediment and erosion control measures at construction sites. Development, implementation, and maintenance of the SWPPP will provide the owner/operator with the framework for reducing soil erosion and minimizing pollutants in storm water discharging from the site for both during and after construction.

For the proposed project, as construction phases are completed and new phases commenced, and Contractor changes, the new Contractor will be required to submit a Permit Modification form as applicable. This will ensure that all contractors will comply with the requirements of this SWPPP.

OBJECTIVES

This SWPPP will:

- Provide general construction information;
- Describe the existing site conditions;
- Identify those responsible for developing, implementing, maintaining, and revising this SWPPP;
- Determine the change in impervious surface and identify the types of permanent stormwater treatment methods to be utilized (if necessary);
- Recognize sources of storm water and non-storm water contamination to the storm water drainage system;
- Describe the practices that will be implemented to control erosion and the release of pollutants in storm water;
- Describe the practices that will be implemented to control sediment from leaving the site.
- Create an implementation/maintenance schedule to ensure that the practices described in this SWPPP are in fact implemented and to evaluate the plan's effectiveness in reducing erosion, sediment, and pollutant levels in storm water discharged from the site;
- Describe the final stabilization/termination design to minimize erosion and prevent storm water impacts after construction is complete.

2) CONSTRUCTION ACTIVITY INFORMATION

Project Name		
Duluth International Airport – New Passenger Terminal, Loop Road, and Parking		
Project Location		
Duluth International Airport. S ½ of SW ¼ of Section 1, T50N, R15W.		
Project Size		
Number of Acres: 45.0± Acres		
Number of Acres to be Disturbed: 18.5± Acres (Phase 1)		
Project Type		
Residential	Commercial/Industrial ✓	Road Construction ✓
Other (describe)		
Cumulative Impervious Surface		
Existing area of impervious surface (to the nearest quarter acre) : 17.6 Acres		
Post construction area of impervious surface (to the nearest quarter acre): 20.7 Acres		
Receiving Waters		
Name of Water Body	Type: (ditch, pond, wetland, lake, stream, river)	Special Water, Impaired Water
Miller Creek	Stream	Yes Yes
Dates of Construction		
Construction Start Date: July 6, 2009		Estimated Completion Date: Fall 2010 (Phase 1)

3) PROJECT/SITE DESCRIPTION

The proposed project consists of the construction of a new passenger terminal (and demolition of the existing terminal), reconstruction/ relocation of the access loop road, extension of the loading apron, and construction of vehicle parking lots.

Project will construct a 68,500 SF Passenger Terminal, approximately 6000 LF of access roadways, 664 long term parking stalls, 88 short term parking stalls, 86 employee parking stalls, and a 269 stall rental car lot.

Currently, the facility contains the existing passenger terminal, a 559 stall passenger parking lot, an 108 stall rental car parking lot, a 57 stall employee parking lot, 3600 LF of paved access roadway, two gravel parking lots, as well as supporting utilities (storm sewer, sanitary sewer, water, gas, electric, communication, etc.). The existing impervious surface is approximately 17.6 acres.

Facilities needed to serve the new facility include: access road, parking lots (passenger, employee, rental car), and storm water conveyance and management systems.

The construction of the roads, new homes driveways will increase the amount of impervious surface and storm water runoff. The proposed project will require following the MPCA NPDES Phase II requirements.

The project is located near the intersection of Haines Road and Airport Road in the City of Duluth. The project is a 45± acre site bound to the north by the existing terminal apron and taxiway, to the west by the existing taxiway, to the south by a wooded area, and to the east by Haines Road.

Soils in the project consist of approximately 3 inches of topsoil followed by either fill consisting of silty or clayey sand with gravel, swamp deposits of peat/organic clay and/or organic silt, or glacial till consisting of clayey sand and silty sand with localized sandy silt, silty clay, lean clay, and poorly graded sand with silt. Please refer to the attached soils report for more information.

Drainage flows either overland or via storm sewer to the south toward the existing ditch/swale along the south property line. It then flows to the east towards Miller Creek which is located at least 550' from the majority of the site's storm water discharge points.

4) STORMWATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the project site and proposed development plan. If at any time during the project that the members or their responsibilities changes, it shall be documented in the SWPPP.

The member(s) of the team and their responsibilities (i.e. preparing, implementing, maintaining, record keeping, submitting reports, conducting inspections) are as follows:

Table 1: SWPPP TEAM MEMBERS

Name/Company	Contact Info	Responsibility
Brian Grefe, Duluth Airport Authority	Phone: (218) 727-2968 Fax: (218) 727-2960 4701 Grinden Drive, Duluth, MN 55811	<u>Owner/ Operator/ Co-Permittee</u> -General oversight of the project - Long term operation and maintenance of Permanent Stormwater Management System.
Brett Cahoon, Kraus Anderson Construction	(218) 722-3775 3716 Oneota Street Duluth, MN 55807	<u>Contractor/ Co-Permittee</u> - Responsible for compliance with the terms and conditions of the permit during construction. - Oversight of the construction project. - Reviewing the plan, inspection reports, amendments and corrective Actions. - Oversee day to day operations for the construction project. - Maintain compliance with the Plan and install (and maintain) all erosion and sediment control measures. - Conduct and document onsite inspections. - Amend plan as necessary.
Krech Ojard & Assoc.	(218) 727-3282 227 W. 1 st Street, Suite 200, Duluth, MN 55802	<u>Plan Preparer</u> - KOA was hired by RS&H (Prime Consultant) to prepare portions of the construction documents and the SWPPP.

5) TRAINING

Table 2: TRAINING OF SWPPP TEAM MEMBERS

Duty/ Task	Personnel Name/Company & Contact Info.	Type of Training, Date(s), Location, Instructor	Content of Training Course or Workshop (incl. hours)
SWPPP Preparer	Pete Marthaler Krech Ojard & Assoc. 227 W. 1 st Street, Suite 200, Duluth, MN 55802 (218) 727-3282	<ul style="list-style-type: none"> o Design of SWPPP o October 29-30, 2007 (expires 05/31/2011) o Arden Hills, MN o Univ. of MN ESC Program 	Training for preparation of SWPPP 16 hours (est.)
Oversight, Inspections, Amendments (During Construction)	XXXX, Kraus Anderson Construction 3716 Oneota Street Duluth, MN 55807 (218) 722-3775		
Installation, Maintenance (During Construction)	TBD		

6) PERMANENT STORMWATER MANAGEMENT SYSTEM(S)

The amount of area to be disturbed for the project is approximately 18.5± acres, for Phase 1. The beginning impervious area is 17.6 acres with an estimated net increase of impervious surface to be approximately 3.15 acres per the following table:

Table 3: INCREASE IN IMPERVIOUS SURFACE

Surface Type	Existing Impervious	Proposed Impervious
Roads/Curb and Gutter, Parking surfaces, Sidwalks, Concrete Aprons	706,410 sq.ft.	833,992 sq.ft.
Roofs	58,864 sq.ft.	68,475 sq.ft.
Total Impervious Surface	765,274 sq.ft. (17.6 Ac)	902,467 sq.ft. (20.7 Ac)
Increase in Impervious Surface	137,193 sq.ft. (3.15 acres)	

Since the change in impervious surfaces is greater than one acre, permanent storm water treatment BMP's will be required for this project.

Required water quality volume to be treated = 0.262 ac-ft (11,432 cu. ft.)

Proposed water quality volume to be treated = 0.889 ac-ft (39,160 cu. ft.)

The following is a list of areas and the associated treatment methods to be used:

Parking Lot(s)/New Terminal Building

- Grit Chamber/Oil-water Separators in combination with Underground Detention Chambers/ Filtration areas will be constructed to capture and treat stormwater runoff from select rooftop(s), and paved surface areas.
 - Stormwater runoff at a peak discharge rate of up to 1.5 cfs will flow through the grit chamber/oil-water separators. These devices will then discharge to the underground detention/infiltration facilities. Flows exceeding 1.5 cfs will bypass the grit chamber/oil-water separator and pass directly to the underground detention chambers.
 - The underground detention/infiltration facilities will accommodate and provide treatment for runoff resulting from storm events up to the 10 year 24 hour storm event. Discharge from the underground detention/infiltration facilities are controlled by an outlet control structure consisting of a 6" orifice and a broad crested weir.
 - Peak Runoff in excess of the 10 year 24 hour storm event will bypass the system through a high flow bypass pipe and discharge to the existing ditch located along the south side of the loop roadway.
 - Underground detention areas are required as a result of current FAA regulations that do not permit construction of new surface water impoundments (water quality ponds, rain gardens, etc.) within 10,000 feet of airport runways due to these impoundments' ability to attract waterfowl.
 - As Miller Creek is located within 1 mile of the project, and will receive stormwater discharges from the project, and Miller Creek is classified as a Special as well as Impaired Water (for Water Temperature, but lacking an approved TMDL), per the General Permit Appendix A, Part C.2., infiltration of ½ inch of the Water Quality Volume is required. However, due to the presence of soils containing clays and silts, (HSG D Soils), infiltration of this volume cannot be achieved. Infiltration tests were performed on the soil samples collected by the Geotechnical Engineering Consultant and presented in a comprehensive report of the existing soils. Test results from the report are attached (see appendix).
 - The underground detention/filtration facilities will permit the runoff to cool before being discharged. This will minimize the direct discharge of the initial inch of runoff which has been heated by traveling across the paved surfaces.
 - Please refer to the final plans, details and specifications for locations, sizing and materials to be used.

Airplane Apron (Extension)

- Existing storm water detention ponds will capture and treat stormwater runoff from the airplane apron extension. The ponds will also serve as a method to treat the glycol in runoff from de-icing operations.

Please refer to Section 11 for identification of maintenance measures for the Stormwater Management system.

7) POTENTIAL SOURCES OF POLLUTION

The purpose of this section is to identify pollutants that could impact storm water during construction.

Pollutants that result from clearing, grading, excavation, and building materials and have the potential to be present in storm water runoff are listed in Table 4. This table includes information regarding material type, chemical and physical description, and the specific regulated storm water pollutants associated with each material.

Table 4: POTENTIAL CONSTRUCTION SITE STORM WATER POLLUTANTS

Trade Name Material	Chemical/Physical Description ⁽¹⁾	Storm Water Pollutants ⁽¹⁾
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets or grains	Chlorinated hydrocarbons, organophosphates, carbamates, arsenic
Fertilizer	Liquid or solid grains	Nitrogen, phosphorous
Plaster	White granules or powder	Calcium sulphate, calcium carbonate, sulfuric acid
Cleaning solvents	Colorless, blue or yellow-green liquid	Perchloroethylene, methylene, chloride, trichloroethylene, petroleum distillates
Asphalt	Black solid	Oil, petroleum distillates
Concrete	White solid	Limestone, sand
Glue, adhesives	White or yellow liquid	Polymers, epoxies
Paints	Various colored liquid	Metal oxides, Stoddard solvent, talc, calcium carbonate, arsenic
Curing compounds	Creamy white liquid	Naphtha
Wastewater from construction	Water	Soil, oil & grease, solids
Wood preservatives	Clear amber or dark brown liquid	Stoddard solvent, petroleum distillates, arsenic, copper, chromium
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE
Diesel fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes
Kerosene	Pale yellow liquid petroleum hydrocarbon	Coal oil, petroleum distillates
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)

Erosion	Solid particles	Soil, sediment

(1) Data obtained from MSDSs when available

8) POTENTIAL AREAS FOR SOURCES OF POLLUTION

Areas prone to soil erosion shall be protected, and the soil kept out of the storm water discharge. The following potential source areas of storm water contamination were identified and evaluated:

- Cleared and grubbed areas;
- Building construction/areas;
- Construction site entrance, roadway and driveway construction;
- All undisturbed areas.

Table 5 presents site specific information regarding storm water pollution from each of these areas.

Table 5: LOCATIONS OF POTENTIAL SOURCES OF STORMWATER CONTAMINATION

Potential Storm Water Contamination Point	Potential Pollutants	Potential Problems
Cleared and Grubbed Areas	Total Suspended Solids, Total Dissolved Solids	Erosion of exposed soils from cleared and grubbed areas have the potential to discharge pollutants to surface waters. Ruts caused by logging equipment can fill with water, preventing complete re-vegetation.
Building Construction/	Plaster, cleaning solvents, asphalt, concrete, paints, hydraulic oil, gasoline, antifreeze, soil erosion, fertilizer, pesticides, glue adhesives, curing compounds, wood preservatives, kerosene	Accidental spills of paints and cleaning solvents, leaking hydraulic oil and antifreeze from construction equipment, gasoline diesel fuel spills while fueling construction equipment, erosion of exposed and stockpiled soils, and degradation of scrap dry wall can potentially contaminate storm water. Asphalt chemicals can be released to storm water if a rain even occurs before curing is complete.
Construction Site Entrance, Roadway, and	Asphalt, hydraulic oil, gasoline, antifreeze, soil erosion, fertilizer,	Leaking hydraulic oil and antifreeze from clearing, grading and asphalt application construction equipment. Gasoline and diesel

Driveway Construction	pesticides	fuel spills while fueling construction equipment, erosion of exposed and stockpiled soils. Asphalt chemicals can be released to storm water if a rain event occurs before curing is complete. Tracking of soil into the road through the construction site entrance.
All Undisturbed Areas	None	No storm water related issues with undisturbed areas.

9) BEST MANAGEMENT PRACTICES

BMP's or best management practices will be implemented on site to reduce the amount of pollutants in storm water discharged from the project. The staging of construction and placement of proper erosion and sediment control devices is critical to the prevention of a prohibited discharge of sediment from the project site. The project phasing will be according to the plans. The contractor shall be responsible for proceeding with construction phasing to minimize erosion and sedimentation. Prior to construction activities starting all down- gradient sediment control devices must be established as indicated on the plans before any up-gradient land disturbance activities begin. Areas not to be disturbed shall be delineated with flags, silt fence, stakes, signs, or other acceptable methods to prevent areas from being disturbed. The silt fence shall remain in place until final site stabilization.

The first step in the construction process will be to install perimeter sediment control measures as identified in the plan. The next step in the construction will be to strip and stockpile topsoil for use in the restoration of the site. The stockpile shall have silt fence placed around it and be stabilized with temporary seed with mulch or place plastic sheeting on top to prevent sedimentation from the stockpile area. Vehicle tracking of sediment from the construction site must be minimized by the use of stone pads, concrete or steel wash racks, or equivalent systems. All excavated materials unsuitable for building, backfill, or final stabilization shall be hauled off-site immediately and disposed of properly.

A) TIME FRAMES

1. The Contractor(s) must plan for and implement appropriate construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices that minimize erosion, so that the inspection and maintenance requirements of Part IV.E. (of the General Permit) are complied with. The location of areas not to be disturbed must be delineated (e.g. with flags, stakes, signs, silt fence etc.) on the development site before work begins.
2. During construction, all exposed soil areas must be **stabilized** as soon as possible to limit soil erosion but in no case later **than 7 days after** the construction activity in that portion of the site has temporarily or permanently ceased.

3. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement but must comply with Part 9.C.4 of this document (also Part IV.C.5. of the General Permit).
4. The **normal wetted perimeter** of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be **stabilized** within 200 lineal feet from the property edge, or from the point of discharge into any **surface water**. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a **surface water**.
5. Stabilization of the remaining portions of any temporary or permanent ditches or swales must be complete within 14 days after connecting to a **surface water** and construction in that portion of the ditch has temporarily or permanently ceased.
6. Temporary or permanent ditches or swales that are being used as a sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes etc.) do not need to be **stabilized**. These areas must be **stabilized** within 24 hours after no longer being used as a sediment containment system.
7. Pipe outlets must be provided with temporary or permanent **energy dissipation** within 24 hours after connection to a **surface water**.

B) EROSION CONTROL PRACTICES

Erosion controls shall be addressed to prevent the exposure of soil to stormwater during construction activity. The erosion control practices that shall be implemented throughout the site are stated below:

1. Contractor shall minimize the amount of area disturbed to the maximum extent practical;
2. Dust on the site shall be controlled by spraying water on the dry areas of the site;
3. Class III Rip-Rap with Type IV Geotextile Fabric shall be placed at all culvert end sections and channelized conveyances as indicated on the site plan to prevent washouts;
4. Contractor shall construct stabilized diversion berms (when/where applicable) to divert stormwater runoff from entering the construction area.
5. In order to maintain sheet flow and minimize rills and/or gullies, there shall be no unbroken slope length of greater than 75 feet for slopes with a grade of 3:1 or steeper.
6. Hydraulic Soil Stabilizer Type 6 shall be placed at 2100 lbs/acre, according to the time frames describe above, on all disturbed areas which cannot undergo final stabilization.
7. Permanent seed and mulch shall be placed on all disturbed areas undergoing final stabilization according to the following specifications;
 - o Place 4" (min.) topsoil on all exposed surfaces;
 - o Permanent seed mixture 250 at 125lbs/acre (Roadside Areas);

- Fertilizer 10-10-10 at an application rate according to the manufacturer's recommendations for soil type;
- Soil stabilization shall consist of:

	Slope 4H:1V or flatter	Slopes steeper than 4H:1V or Channel Liner
Within 100' of Miller Creek	Sod and Rapid Stabilization Method 4 (See Plan for Locations)	Rapid Stabilization Method 4
Beyond 100' of Miller Creek but within 200' of Surface Waters (ie Wetlands, Streams, etc.)	Sod and Rapid Stabilization Method 4 (excl. parking lot islands, see plan)	Rapid Stabilization Method 4
Beyond 200' of Surface Waters	Type 6 HSS (2100 lbs/ acre)	Category 2 Erosion Mat

C) SEDIMENT CONTROL PRACTICES

Sediment may still exist in stormwater runoff after the erosion control BMP's have been implemented and will exist in the stormwater runoff from the exposed areas actively being worked. To capture sediment in stormwater runoff, the following sediment control practices will be employed:

1. Silt fence (Machine Sliced, Heavy Duty, Super Heavy Duty) shall be installed as indicated on the site plan and down gradient of all other areas disturbed due to construction;
2. A vegetative buffer shall be maintained around all wetland areas to the maximum extent possible.
3. Vehicle tracking of sediment from the construction site (or onto streets within the site) shall be minimized by **BMPs** such as stone pads, concrete or steel wash racks, or equivalent systems. Street sweeping must be used if such **BMPs** are not adequate to prevent sediment from being tracked onto the street (see Part IV.E.4.d. of the General Permit). Contractor shall have equipment available to sufficiently remove any soil, mud or debris washed, tracked or deposited onto paved surfaces. Such operations shall be performed at the end of each work day and immediately prior to rain events.
4. Temporary soil stockpiles will have silt fence or other effective **sediment controls**, and will not be placed in **surface waters**, including **stormwater** conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the stormwater.
5. All storm drain inlets will be protected by appropriate **BMPs** during construction until all sources with potential for discharging to the inlet have been **stabilized**. Contractor shall be responsible for selecting the most appropriate inlet control devices for each inlet, fSee Construction plan for identification and location of specific inlet control devices.

6. Permittee(s) should refer to Part IV.C.4. for information regarding emergency removal of inlet protection if a specific safety concern (street flooding/freezing) has been identified.

D) BUFFER ZONES FOR SPECIAL WATERS AND IMPAIRED WATERS

1. Miller Creek is both a Special and Impaired Water. As such, an undisturbed buffer of not less than 100 linear feet from Miller Creek shall be maintained at all times.

Miller Creek flows south on the east edge of Haines Road (north of the intersection with Airport Road) where it flows through a culvert under Haines Road located approximately 150' north of the intersection. Miller Creek then flows to the south and west, where it crosses under Grinden Drive through a culvert located approximately 130' west of the intersection of Haines and Grinden.

This project requires construction to occur in this 100 foot buffer. Because construction in this buffer is limited to reconstruction of Haines road/ Grinden Drive ("replacement of existing impervious surface within the buffer is allowed under this permit", General Permit Appendix A, par. C.3).

Water Quality and environmental impacts of this exception will be mitigated by the use of additional or redundant BMP's. Proposed additional/ redundant BMP's include:

- Heavy duty silt fence (wire fence backer) with Bio-roll ditch checks
- Super duty silt fence (Traffic Barrier w/ geotextile) will be placed at the locations where Miller Creek flows under Haines Road and Grinden Drive.

E) ESTIMATED EROSION AND SEDIMENT CONTROL QUANTITIES

Phase 1- Replacement Terminal Area Development, Landside Site Phase 1

Silt Fence	
Machine Sliced –	4,410 L.F.
Heavy Duty –	656 L.F.
Super Duty –	343 L.F.
Storm Drain Inlet Protection	60 Ea.
Filter Log, Type Straw Bioroll	800 L.F.
Rock Construction Entrance(s)	1200 S.Y.
Seeding (Base prep and installation)	2.1 Acres
Seed Mix 250	262 Lbs.
Sodding, Type Lawn	6624 S.Y.
Erosion Control Blanket, Category 2	1371 S.Y.
Fertilizer Type 1, 10-10-10	840 Lbs
Hydraulic Soil Stabilizer Type 6	3780 Lbs
Rapid Stabilization, Method No. 4	9374 S.Y.
Riprap, Radom Class III	100 C.Y.
Riprap, Random Class IV	175 C.Y.

Note: SWPPP will be amended to when final roadway plans are completed. See final plans when complete for erosion and sediment control quantities for roadway construction.

F) POLLUTION PREVENTION MANAGEMENT MEASURES

Good housekeeping and spill control practices will be followed during construction operations to minimize storm water contamination. The following pollution prevention measures will be utilized to prevent stormwater contamination:

- Fertilizers will be applied only in the minimum amounts as recommended by the manufacturer and based on the soil test results.
- Fertilizers will be worked into the soil to limit exposure to storm water.
- Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to avoid spills.
- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Spill kits will be included with all fueling sources and maintenance activities.
- Any asphalt substances used on-site will be applied according to the manufacturer's recommendation.
- Sanitary waste will be collected from portable units a minimum of two times a week to avoid overfilling.
- A covered dumpster will be used for all waste materials.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm system but will be properly disposed according to the manufacturers' instructions.
- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer on site. Equipment will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, saw dust, and plastic and metal trash containers.
- Spray guns will be cleaned on a removable tarp.
- Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site, unless discharged to an engineered containment system. The Engineered system must include site drawings for the project file and written assurance that the system will work as designed and leave no discharge of concrete or concrete residue potential to enter waters of the state.
- Form release oil used for decorative stone work will be applied over a pallet covered with an absorbent material to collect excess fluid. The absorbent material will be replaced and disposed of properly when saturated.

10) SPILL RESPONSE PROCEDURE

The permittee/operator shall immediately notify the National Response Center at (800) 424-8802 immediately upon discovery of any large spill.

11) INSPECTION AND MAINTENANCE

A) DURING CONSTRUCTION

The Permittee(s) must routinely inspect the construction site once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. The inspections and maintenance conducted must be recorded in writing and these records must be retained. Records of the inspection and maintenance activity shall include:

- Date and time of inspections
- Name of person(s) conducting inspections
- Findings of inspections, including recommendations for corrective actions
- Corrective actions taken (including dates, times, and party completing maintenance activities)
- Date and amount of all rainfall events greater than 0.5 inches in 24 hours
- Documentation of changes made to the SWPPP

Where parts of the construction site have permanent cover, but work remains on other parts of the site, inspections of the areas with permanent cover may be reduced to once per month. Where construction sites have permanent cover on all exposed soil areas and no construction activity is occurring anywhere on the site, the site must be inspected for a period of twelve (12) months (the inspections may be ceased during frozen ground conditions). Following the twelfth month of permanent cover and no construction activity, inspections may be terminated until construction activity is once again initiated or sooner if notified in writing by the MPCA. Where work has been suspended due to frozen ground conditions, the required inspections and maintenance schedule must begin within 24 hours after runoff occurs at the site or prior to resuming construction, whichever comes first.

All erosion prevention and sediment control BMP's must be inspected to ensure integrity and effectiveness. All nonfunctional BMP's must be repaired, replaced or supplemented with functional BMP's. The Permittee must investigate and comply with inspection and maintenance requirements according to Part IV.E.4 of the NPDES Phase II General Permit. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built-up sediment will be removed from silt fencing when it has reached one-third the height of the fence. Silt fences will be inspected for depth of sediment, for tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access.
- Temporary and permanent seeding will be inspected for bare spots, washouts and healthy growth.
- Erosion Blankets will be inspected for tears and/or displacement and to make sure it remains securely fasten to the ground.
- The stabilized construction entrance will be inspected for sediment tracked on the road, for clean gravel and to make sure that the culvert beneath the entrance is working and that all traffic use the stabilized entrance when leaving the site.

If construction activities or design modifications are made to the site plan which could impact storm water, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities.

Upon completion of each phase, the contractor shall be responsible for removing all sediment and oil from the grit chamber/oil-water separators and removing all sediment contained in the isolator row of the underground detention chamber systems.

B) POST CONSTRUCTION (LONG TERM)

The Duluth Airport Authority (DAA) will be responsible for long term inspection and maintenance of the Stormwater Management and conveyance system. Responsibility will be transferred from the contractor to the DAA after submittal of the Notice of Termination to the MPCA.

The DAA will be required to routinely inspect the systems (at least annually) for build up of sediment in catch basins, grit chambers, oil trap(s), and underground detention systems, and for signs of erosion at discharge points of the system.

The DAA shall perform maintenance of the grit chamber(s)/oil trap(s) at least semi-annually. Maintenance shall be in accordance with manufacturers recommendations/requirements.

The DAA shall perform maintenance of the underground detention systems at least annually. Maintenance shall be in accordance with manufacturers recommendations/requirements.

The inspections and maintenance conducted on the system must be recorded in writing and these records must be kept on file for a period of seven years.

12) FINAL STABILIZATION

The Permittee must ensure final stabilization of the site. The Permittee must submit a Notice of Termination within 30 days after final stabilization is achieved and all land disturbing construction activities are complete. Final stabilization is measured according to Parts IV.G.1-5 or Part IV.G.6: of the NPDES Phase II General Permit.

13) RECORD KEEPING AND REPORTING

The SWPPP, all changes to it and inspections and maintenance records must be kept on the site for the duration of construction by the Permittee who has operational control of that portion of the site. The SWPPP and records shall be made available to federal, state or local officials upon request. Owner(s) shall keep the SWPPP along with any additional records on file for three (3) years after submittal of the Notice of Termination (NOT) as outlined in Part III.D of the NPDES Phase II General Permit. This does not include any records after submittal of the Notice of Termination.

-End of Document-

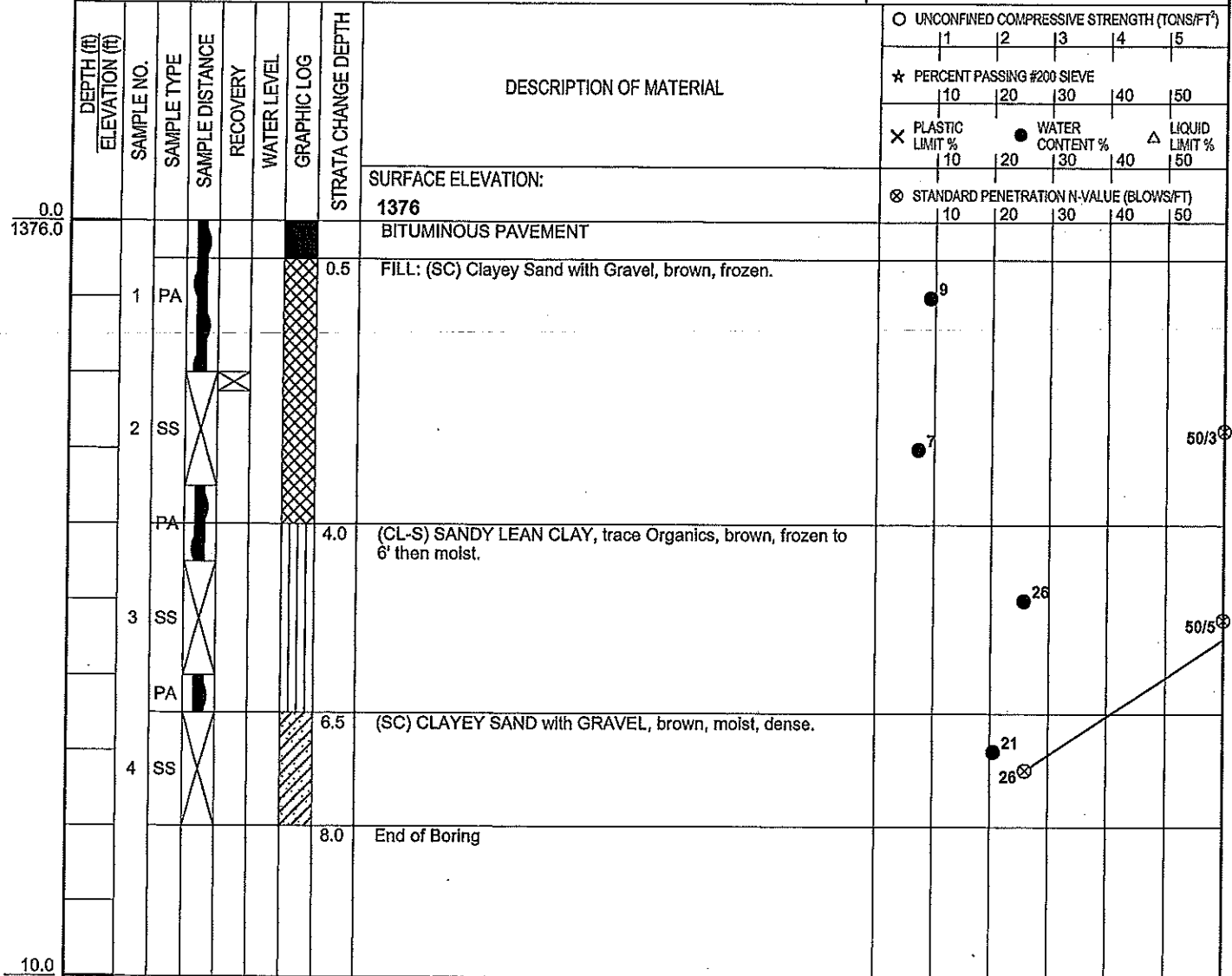


SB-1

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads		CLIENT: Reynolds, Smith, & Hills, Inc.	TPT Job No.: 09M5059
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.		SITE LOCATION: Duluth, Minnesota	
BORING NUMBER - LOCATION: SB-1 See sketch.		REPORT DATE: 4/2/09	



10.0
1366.0

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.	
WATER LEVEL	BORING STARTED 03/06/09	BORING COMPLETED 03/06/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 55	CREW CHIEF Jason Yecoshenko	



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BOREHOLE LOG 09M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09

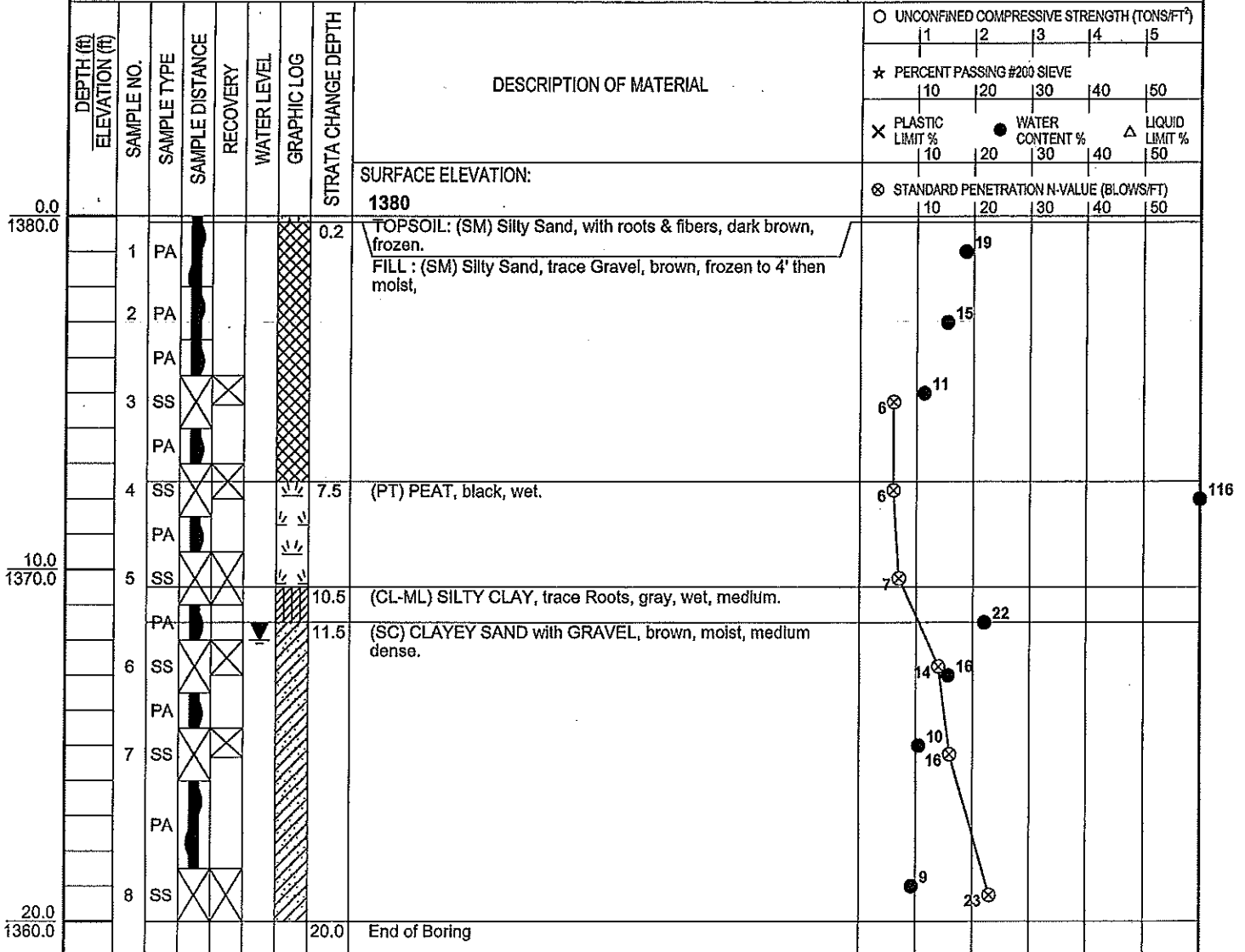


SB-3

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads	CLIENT: Reynolds, Smith, & Hills, Inc.	TPT Job No.: 09M5059
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.	SITE LOCATION: Duluth, Minnesota	
BORING NUMBER - LOCATION: SB-3 See sketch.		REPORT DATE: 4/2/09



WATER LEVEL 12 WS	THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL	BORING STARTED 03/16/09	BORING COMPLETED 03/16/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko	

BOREHOLE LOG 09M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09



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BOREHOLE LOG 09M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09



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BOREHOLE LOG D9M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09



SB-8

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-8 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	<input type="checkbox"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) <input checked="" type="checkbox"/> PERCENT PASSING #200 SIEVE <input checked="" type="checkbox"/> PLASTIC LIMIT % ● WATER CONTENT % Δ LIQUID LIMIT % <input checked="" type="checkbox"/> STANDARD PENETRATION N-VALUE (BLOWS/FT)						
									1	2	3	4	5		
0.0 1396.0								SURFACE ELEVATION: 1396							
	1	PA					0.3	BITUMINOUS PAVEMENT (SC) CLAYEY SAND, trace to with GRAVEL, brown, frozen to 6' then moist, medium dense.	● 8						
	2	PA								● 12					
		PA													
	3	SS								● 11					
		PA													
	4	SS								● 13			● 29		
	5	SS											● 26		
10.0 1386.0							10.0	End of Boring							

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL	BORING STARTED 03/10/09	BORING COMPLETED 03/10/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-White Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.	
WATER LEVEL	CAVE IN LEVEL			
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko		



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GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads		CLIENT: Reynolds, Smith, & Hills, Inc.	TPT Job No.: 09M5059
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.		SITE LOCATION: Duluth, Minnesota	
BORING NUMBER - LOCATION: SB-9 See sketch.		REPORT DATE: 4/2/09	

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)	PERCENT PASSING #200 SIEVE	PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %	STANDARD PENETRATION N-VALUE (BLOWS/FT)
									1	2	3	4	5	
									10	20	30	40	50	
									X					
									10	20	30	40	50	
									⊗					
									10	20	30	40	50	
0.0 1398.0								SURFACE ELEVATION: 1398						
								BITUMINOUS PAVEMENT						
	1	PA					0.4	(SC) CLAYEY SAND, trace to with GRAVEL, brown, frozen to 6' then moist, very dense.	6					
	2	PA								14				
		PA												
	3	SS								14				64
		PA												
	4	SS												67
	5	SS								11				
														50/5
10.0 1388.0							9.4	End of Boring						

WATER LEVEL	THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL	BORING STARTED 03/10/09	BORING COMPLETED 03/10/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko	



SB-10

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT:		CLIENT:		TPT Job No.:	
DIA Parking Lots and Access Roads		Reynolds, Smith, & Hills, Inc.		09M5059	
ARCHITECT - ENGINEER:			SITE LOCATION:		
Reynolds, Smith, & Hills, Inc.			Duluth, Minnesota		
BORING NUMBER - LOCATION:				REPORT DATE:	
SB-10 See sketch.				4/2/09	

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	TEST RESULTS					
									UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)	PERCENT PASSING #200 SIEVE	PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %	
0.0 1397.0								SURFACE ELEVATION: 1397						
								BITUMINOUS PAVEMENT						
	1	PA					0.3	(SC) CLAYEY SAND, trace to with GRAVEL, brown, frozen to 6' then moist, dense.	5					
	2	PA							14					
		PA												
	3	SS							15					
		PA												
	4	SS							10					
	5	SS					8.5	(ML) SANDY SILT, brown, wet, medium dense.						
10.0 1387.0							10.0	End of Boring						

WATER LEVEL	THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL	BORING STARTED 03/11/09	BORING COMPLETED 03/11/99	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 55	CREW CHIEF Jason Yecoshenko	



SB-11

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-11 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					PERCENT PASSING #200 SIEVE					PLASTIC LIMIT %					WATER CONTENT %					LIQUID LIMIT %				
0.0 1399.0								SURFACE ELEVATION: 1399																									
	1	PA					0.4	BITUMINOUS PAVEMENT (SC) CLAYEY SAND, trace Gravel, brown, frozen to 5' then moist, dense.	4																								
	2	SS																															
	3	SS																															
	4	SS					6.5	(ML) SILT with SAND, brown, wet, medium dense.																									
10.0 1389.0	5	SS																															
	6	SS																															
	7	SS					13.0	(SC) CLAYEY SAND, trace to with GRAVEL, brown, moist, very dense.																									
	8	SS																															
20.0 1379.0							20.0	End of Boring																									

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.			
WATER LEVEL		BORING STARTED 03/10/09		BORING COMPLETED 03/10/09	
WATER LEVEL		CAVE IN LEVEL			
WATER LEVEL		RIG CME 1050		CREW CHIEF Jason Yecoshenko	

ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.



SB-12

GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-12 (offset 20' south) See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					
									1	2	3	4	5	
									★ PERCENT PASSING #200 SIEVE					
									10	20	30	40	50	
									X PLASTIC LIMIT %	● WATER CONTENT %	Δ LIQUID LIMIT %			
									10	20	30	40	50	
									⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)					
									10	20	30	40	50	

SURFACE ELEVATION:
1407

0.0
1407.0

1 PA

2 PA

3 SS

4 SS

5 SS

6 SS

7 SS

10.0
1397.0

11.5

20.0
1387.0

TOPSOIL: (ML) Sandy Silt, with roots & fibers, brown, frozen.
(ML) SANDY SILT, trace Gravel, brown, frozen to 4' then
moist, medium dense.

(SC) CLAYEY SAND, trace Gravel, Cobbles from 27" to 28.5",
brown, moist, medium dense to very dense.

17

15

22

16

12

19

12

22

12

27

10

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES
IN-SITU, THE TRANSITION MAY BE GRADUAL.

WATER LEVEL

BORING STARTED
03/12/09

BORING COMPLETED
03/12/09

CAVE IN LEVEL

RIG
CME 1050

CREW CHIEF
Jason Yecoshenko

ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.



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GEOTECHNICAL EVALUATION - BORING LOG

Page 2 of 2

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SB-13

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 2

PROJECT:				CLIENT:				TPT Job No.:								
DIA Parking Lots and Access Roads				Reynolds, Smith, & Hills, Inc.				09M5059								
ARCHITECT - ENGINEER:						SITE LOCATION:										
Reynolds, Smith, & Hills, Inc.						Duluth, Minnesota										
BORING NUMBER - LOCATION:						REPORT DATE:										
SB-13 (offset 10' north) See sketch.						4/2/09										
DEPTH (ft)	ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL		○ UNCONFINED COMPRESSIVE STRENGTH (TONS/FT²) 1 2 3 4 5					
											★ PERCENT PASSING #200 SIEVE 10 20 30 40 50					
											× PLASTIC LIMIT % ● WATER CONTENT % ▲ LIQUID LIMIT % 10 20 30 40 50					
									SURFACE ELEVATION: 1407		⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT) 10 20 30 40 50					
		1	PA					0.4	BITUMINOUS PAVEMENT (SC) CLAYEY SAND, trace Gravel, brown, frozen to 6' then moist, medium dense to dense.			7				
		2	PA									14				
			PA									16				
		3	SS									28	⊗			
			PA													
		4	SS									13				
			PA									34	⊗			
		5	SS									8				
			PA					10.5	(ML) SILT with SAND, brown, wet, medium dense.			26	⊗			
		6	SS									18	⊗	19		
			PA													
		7	SS					14.0	(SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense to dense.			25	⊗			
			PA									13				
WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.														
WATER LEVEL		BORING STARTED 03/12/09			BORING COMPLETED 03/12/09			ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.								
WATER LEVEL		CAVE IN LEVEL														
WATER LEVEL		RIG CME 1050			CREW CHIEF Jason Yecoshenko											



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GEOTECHNICAL EVALUATION - BORING LOG

Page 2 of 2

BORING NUMBER - LOCATION:							TPT Job No.:												
SB-13 (offset 10' north) See sketch.							09M5059												
DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL					<input type="radio"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) 1 2 3 4 5						
													★ PERCENT PASSING #200 SIEVE 10 20 30 40 50						
								× PLASTIC LIMIT % 10 20 30 40 50					● WATER CONTENT % 10 20 30 40 50						
								⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT) 10 20 30 40 50											
20.0 1387.0	8	SS						(CONTINUED)											
		PA						(SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense to dense. (continued)											
	9	SS																	
		PA																	
30.0 1377.0	10	SS					30.0	End of Boring											
40.0 1367.0																			
50.0 1357.0																			



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GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-14 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	<input type="checkbox"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) <input checked="" type="checkbox"/> PERCENT PASSING #200 SIEVE <input checked="" type="checkbox"/> PLASTIC LIMIT % <input checked="" type="checkbox"/> WATER CONTENT % <input checked="" type="checkbox"/> LIQUID LIMIT % <input checked="" type="checkbox"/> STANDARD PENETRATION N-VALUE (BLOWS/FT)						
									1	2	3	4	5		
0.0 1403.0								SURFACE ELEVATION: 1403							
	1	PA					0.4	BITUMINOUS PAVEMENT (SC) CLAYEY SAND, trace Gravel, brown, frozen to 6' then moist, medium dense.	5						
	2	PA							12						
	3	SS							22	24					
	4	SS							14	20					
10.0 1393.0	5	SS							14	23					
	6	SS							13	14					
	7	SS							11	14					
	8	SS					17.5	(ML) SILT with SAND, brown, wet, medium dense.							
20.0 1383.0							20.0	End of Boring							

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU; THE TRANSITION MAY BE GRADUAL.	
WATER LEVEL	BORING STARTED 03/12/09	BORING COMPLETED 03/12/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko	



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GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 2

PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-15 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	TEST RESULTS				
									UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)	PERCENT PASSING #200 SIEVE	PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %
0.0 1406.0								SURFACE ELEVATION: 1406					
	1	PA					0.5	BITUMINOUS PAVEMENT					
	2	PA						FILL: (SM) Silty Sand, trace to with Gravel, trace roots at 7' to 8.5', brown, frozen to 6' then moist.	5				
	3	SS							13				
	4	SS							12				
	5	SS					8.5	(SC) CLAYEY SAND, trace Gravel, brown, moist, loose to medium dense.	30				
10.0 1396.0	6	SS							9				
	7	SS							16				
	8	SS							11				
	9	SS							10				
	10	SS							16				
	11	SS							14				
	12	SS							15				
20.0 1386.0	13	SS							15				

WATER LEVEL 28.5 WS		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.	
WATER LEVEL 26 BCR	BORING STARTED 03/16/09	BORING COMPLETED 03/16/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko	



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GEOTECHNICAL EVALUATION - BORING LOG

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BORING NUMBER - LOCATION:							TPT Job No.:							
SB-15 See sketch.							09M5059							
DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	<input type="checkbox"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) 1 2 3 4 5					
									★ PERCENT PASSING #200 SIEVE 10 20 30 40 50					
									<input checked="" type="checkbox"/> PLASTIC LIMIT % ● WATER CONTENT % △ LIQUID LIMIT % 10 20 30 40 50					
									<input checked="" type="checkbox"/> STANDARD PENETRATION N-VALUE (BLOWS/FT) 10 15 20 30 40 50					
20.0 1386.0	8	SS						(CONTINUED)						
		PA						(SC) CLAYEY SAND, trace Gravel, brown, moist, loose to medium dense. (continued)						
	9	SS												
		PA												
30.0 1376.0	10	SS												
							30.0	End of Boring						
40.0 1366.0														
50.0 1356.0														



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GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 2

PROJECT: DIA Parking Lots and Access Roads		CLIENT: Reynolds, Smith, & Hills, Inc.		TPT Job No.: 09M5059	
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.			SITE LOCATION: Duluth, Minnesota		
BORING NUMBER - LOCATION: SB-16 See sketch.				REPORT DATE: 4/2/09	

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					
									1	2	3	4	5	
									★ PERCENT PASSING #200 SIEVE					
									10	20	30	40	50	
									×	PLASTIC LIMIT %	●	WATER CONTENT %	Δ	LIQUID LIMIT %
									10	20	30	40	50	
									⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)					
									10	20	30	40	50	

0.0 1406.0	1	PA						FILL: (SM) Silty Sand trace to with Gravel, brown, frozen to 4' then moist.	6				
	2	PA							11				
	3	SS							12	13			
	4	SS							10	16			
10.0 1396.0	5	SS					9.0	FILL: (SC) Clayey Sand with Gravel, trace roots, layer of organic clay at 10', brown, wet.	8	15			
	6	SS							10	21			
	7	SS					14.0	(OL) ORGANIC SILT, trace Roots, brown, wet, medium dense.	13	21			
		PA											
20.0 1386.0							17.5	(SM) SILTY SAND, trace Gravel, trace Organics, brown, moist, medium dense.	13				

WATER LEVEL 23 WD		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.			
WATER LEVEL		BORING STARTED 03/13/09	BORING COMPLETED 03/13/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-White Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.	
WATER LEVEL		CAVE IN LEVEL			
WATER LEVEL		RIG CME 1050	CREW CHIEF Jason Yecoshenko		



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GEOTECHNICAL EVALUATION - BORING LOG

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BORING NUMBER - LOCATION:							TPT Job No.:								
SB-16 See sketch.							09M5059								
DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	○ UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)						
									1	2	3	4	5		
									★ PERCENT PASSING #200 SIEVE						
									10	20	30	40	50		
									✕ PLASTIC LIMIT %		● WATER CONTENT %		△ LIQUID LIMIT %		
									10	20	30	40	50		
									⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)						
									10	13	20	30	40	50	
20.0 1386.0	8	SS						(CONTINUED) (SM) SILTY SAND, trace Gravel, trace Organics, brown, moist, medium dense. (continued)							
		PA					22.5	(ML) SILT with SAND, brown, wet, medium dense.							
	9	SS													
		PA													
30.0 1376.0	10	SS													
							30.0	End of Boring							
40.0 1366.0															
50.0 1356.0															



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GEOTECHNICAL EVALUATION - BORING LOG

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BORING NUMBER - LOCATION:							TPT Job No.:															
SB-18 See sketch.							09M5059															
DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL					<input type="radio"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) 1 2 3 4 5									
													★ PERCENT PASSING #200 SIEVE 10 20 30 40 50									
					× PLASTIC LIMIT % ● WATER CONTENT % Δ LIQUID LIMIT % 10 20 30 40 50																	
					⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT) 10 20 30 40 50																	
20.0 1377.0								(CONTINUED)														
		PA						(SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense. (continued)														
	9	SS																				
							25.0	End of Boring														
30.0 1367.0																						
40.0 1357.0																						
50.0 1347.0																						



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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-20 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	○ UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) ★ PERCENT PASSING #200 SIEVE X PLASTIC LIMIT % ● WATER CONTENT % △ LIQUID LIMIT % ⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)						
									1	2	3	4	5		
0.0 1382.0								SURFACE ELEVATION: 1382							
	1	PA						FILL: (SM) Silty Sand, trace Gravel, brown, frozen.							
	2	SS													
		PA					4.0	(CL) LEAN CLAY, brown, frozen to 5' then wet, stiff.							
	3	SS													
		PA					6.5	(SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense.							
	4	SS													
10.0 1372.0		PA													
	5	SS													
		PA													
	6	SS													
		PA													
	7	SS													
		PA													
		PA					17.5	(SM) SILTY SAND, brown, moist, very dense.							
20.0 1362.0	8	SS													
							21.0	End of Boring							

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.	
WATER LEVEL	BORING STARTED 03/07/09	BORING COMPLETED 03/07/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL 16		
WATER LEVEL	RIG CME 1050	CREW CHIEF Lou Dinnan	

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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-22 (offset 4.5' north) See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	<input type="radio"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) <input checked="" type="radio"/> PERCENT PASSING #200 SIEVE <input checked="" type="radio"/> PLASTIC LIMIT % <input checked="" type="radio"/> WATER CONTENT % <input checked="" type="radio"/> LIQUID LIMIT % <input checked="" type="radio"/> STANDARD PENETRATION N-VALUE (BLOWS/FT)					
									1	2	3	4	5	
0.0 1382.0								SURFACE ELEVATION: 1382						
								BITUMINOUS PAVEMENT						
	1	PA					0.5	(POSSIBLE FILL): (SM) Silty Sand, brown, wet.						
	2	PA						Auger Refusal at 6'.						
		PA												
	3	SS												
							6.0	End of Boring						

0.0
1382.0

10.0
1372.0

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.	
WATER LEVEL	BORING STARTED 03/06/09	BORING COMPLETED 03/06/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 55	CREW CHIEF Jason Yecoshenko	



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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059									
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota											
BORING NUMBER - LOCATION: SB-23 (offset 6' north) See sketch.								REPORT DATE: 4/2/09									
DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL					<input type="radio"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) 1 2 3 4 5				
													★ PERCENT PASSING #200 SIEVE 10 20 30 40 50 × PLASTIC LIMIT % ● WATER CONTENT % Δ LIQUID LIMIT % 10 20 30 40 50 ⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT) 10 20 30 40 50				
0.0 1378.0								SURFACE ELEVATION: 1378									
								BITUMINOUS PAVEMENT									
	1	PA					0.5	(SM) SILTY SAND with GRAVEL, trace Cobbles, brown, frozen to 6' then moist, very dense.					5 7 7 10 15 ⊗				
	2	PA															
	3	SS											50/3 ⊗				
	4	SS															
							8.0	End of Boring									
10.0 1368.0																	
WATER LEVEL						THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.											
WATER LEVEL						BORING STARTED 03/06/09		BORING COMPLETED 03/06/09		ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.							
WATER LEVEL						CAVE IN LEVEL											
WATER LEVEL						RIG CREW CHIEF CME 55 Jason Yecoshenko											



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BOREHOLE LOG 09M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09



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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-25 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	<input type="checkbox"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) <input checked="" type="checkbox"/> PERCENT PASSING #200 SIEVE <input checked="" type="checkbox"/> PLASTIC LIMIT % <input checked="" type="checkbox"/> WATER CONTENT % <input checked="" type="checkbox"/> LIQUID LIMIT % <input checked="" type="checkbox"/> STANDARD PENETRATION N-VALUE (BLOWS/FT)					
									1	2	3	4	5	
0.0 1394.0								SURFACE ELEVATION: 1394						
							0.3	BITUMINOUS PAVEMENT (SM) SILTY SAND trace Gravel, brown, frozen.						
	1	PA												
	2	PA					2.0	(SC) CLAYEY SAND, trace Gravel, brown, moist, very dense.						
		PA												
	3	SS												
		PA												
	4	SS												
							7.6	End of Boring						
10.0 1384.0														

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.			
WATER LEVEL		BORING STARTED 03/11/09	BORING COMPLETED 03/11/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.	
WATER LEVEL		CAVE IN LEVEL			
WATER LEVEL		RIG CME 1050	CREW CHIEF Jason Yecoshenko		



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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-26 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					PERCENT PASSING #200 SIEVE					PLASTIC LIMIT %					WATER CONTENT %					LIQUID LIMIT %				
									1	2	3	4	5	10	20	30	40	50	10	20	30	40	50	10	20	30	40	50					
0.0 1394.0								SURFACE ELEVATION: 1394	STANDARD PENETRATION N-VALUE (BLOWS/FT)																								
								BITUMINOUS PAVEMENT																									
	1	PA					0.5	FILL: (SM) Silty Sand, trace Gravel, brown, frozen.	8																								
	2	PA					2.0	FILL: (SC) Clayey Sand, trace Gravel, trace Roots, brown, frozen to 6' then moist.	8																								
		PA																															
	3	SS							9																								
		PA																															
	4	SS							10																								
		PA																															
	5	SS					8.5	(SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense.	7																								
10.0 1384.0							10.0	End of Boring																									

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.									
WATER LEVEL		BORING STARTED 03/11/09		BORING COMPLETED 03/11/09		ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.					
WATER LEVEL		CAVE IN LEVEL									
WATER LEVEL		RIG CME 1050		CREW CHIEF Jason Yecoshenko							



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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-27 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	<input type="checkbox"/> UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) <input checked="" type="checkbox"/> PERCENT PASSING #200 SIEVE <input checked="" type="checkbox"/> PLASTIC LIMIT % <input checked="" type="checkbox"/> WATER CONTENT % <input checked="" type="checkbox"/> LIQUID LIMIT % <input checked="" type="checkbox"/> STANDARD PENETRATION N-VALUE (BLOWS/FT)						
									1	2	3	4	5		
0.0 1393.0								SURFACE ELEVATION: 1393							
							0.3	BITUMINOUS PAVEMENT							
	1	PA						FILL: (SM) Silty Sand trace Gravel, brown, frozen.							
	2	PA					2.0	FILL: (SC) Clayey Sand, trace Gravel, trace roots, brown, frozen to 6' then moist.							
		PA													
	3	SS													
		PA													
	4	SS													
		PA													
	5	SS					8.5	(SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense.							
10.0 1383.0							10.0	End of Boring							

9

10

11

11

9

24

32

55/0

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.			
WATER LEVEL		BORING STARTED 03/10/09	BORING COMPLETED 03/10/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.	
WATER LEVEL		CAVE IN LEVEL			
WATER LEVEL		RIG CME 1050	CREW CHIEF Jason Yecoshenko		



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BOREHOLE LOG 09M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09



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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-29 See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	○ UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) * PERCENT PASSING #200 SIEVE X PLASTIC LIMIT % ● WATER CONTENT % Δ LIQUID LIMIT % ⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)						
									1	2	3	4	5		
0.0 1404.0								SURFACE ELEVATION: 1404							
	1	PA					0.2	TOPSOIL: (SC) Clayey Sand, with roots, dark brown, frozen. (SC) CLAYEY SAND, trace Gravel, brown, moist, medium dense.	11						
	2	PA							9						
	3	SS							12						
	4	SS							25						
10.0 1394.0	5	SS							10						
	6	SS							14						
	7	SS					14.0	(CL) LEAN CLAY, trace Gravel, brown, wet, stiff.	11						
		PA					17.5	(SC) CLAYEY SAND, brown, wet, medium dense.	14						
20.0 1384.0															

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.			
WATER LEVEL	BORING STARTED 03/13/09	BORING COMPLETED 03/13/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.		
WATER LEVEL	CAVE IN LEVEL				
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko			



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GEOTECHNICAL EVALUATION - BORING LOG

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BOREHOLE LOG 09M5059 RS&H DULUTH INT. AIRPORT.GPJ TWINPORT.GDT 4/3/09



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GEOTECHNICAL EVALUATION - BORING LOG

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GEOTECHNICAL EVALUATION - BORING LOG

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PROJECT: DIA Parking Lots and Access Roads			CLIENT: Reynolds, Smith, & Hills, Inc.			TPT Job No.: 09M5059		
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.					SITE LOCATION: Duluth, Minnesota			
BORING NUMBER - LOCATION: SB-31 See sketch.						REPORT DATE: 4/2/09		

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					PERCENT PASSING #200 SIEVE					PLASTIC LIMIT %					WATER CONTENT %					LIQUID LIMIT %				
									1	2	3	4	5	10	20	30	40	50	10	20	30	40	50	10	20	30	40	50					
0.0 1389.0								SURFACE ELEVATION: 1389																									
								FILL: (SM) Silty Sand with Gravel & Cobbles, brown, frozen.																									
	1	PA																															
	2	PA																															
		PA																															
	3	SS					4.0	FILL: (SC) Clayey Sand, trace Gravel, Organic Clay within sample #5, brown, moist to wet.																									
		PA																															
	4	SS																															
		SS																															
10.0 1379.0	5	SS																															
							10.0	End of Boring																									

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL		BORING STARTED 03/06/09	BORING COMPLETED 03/06/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL		CAVE IN LEVEL		
WATER LEVEL		RIG CME 55	CREW CHIEF Jason Yecoshenko	



SB-32

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 2

PROJECT: DIA Parking Lots and Access Roads			CLIENT: Reynolds, Smith, & Hills, Inc.			TPT Job No.: 09M5059		
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.					SITE LOCATION: Duluth, Minnesota			
BORING NUMBER - LOCATION: SB-32 See sketch.						REPORT DATE: 4/2/09		

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					PERCENT PASSING #200 SIEVE					PLASTIC LIMIT %					WATER CONTENT %					LIQUID LIMIT %				
									1	2	3	4	5	10	20	30	40	50	10	20	30	40	50	10	20	30	40	50					
0.0 1383.0								SURFACE ELEVATION: 1383	(POSSIBLE FILL): (SM) Silty Sand, brown, frozen.																								
	1	PA																															
	2	PA																															
	3	SS					4.0	(SC) CLAYEY SAND, trace Gravel, brown, frozen to 5' then moist, loose to medium dense.																									
	4	SS																															
10.0 1373.0	5	SS																															
	6	SS																															
	7	SS																															
20.0 1363.0																																	

WATER LEVEL		THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL		BORING STARTED 03/07/09	BORING COMPLETED 03/07/09	
WATER LEVEL		CAVE IN LEVEL 17		
WATER LEVEL		RIG CME 1050	CREW CHIEF Lou Dinnan	

ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.



SB-32

GEOTECHNICAL EVALUATION - BORING LOG

Page 2 of 2

[illegible]



SB-33

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads		CLIENT: Reynolds, Smith, & Hills, Inc.	TPT Job No.: 09M5059
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.		SITE LOCATION: Duluth, Minnesota	
BORING NUMBER - LOCATION: SB-33 See sketch.		REPORT DATE: 4/2/09	

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	○ UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)														
									1	2	3	4	5										
									★ PERCENT PASSING #200 SIEVE														
									10	20	30	40	50										
									× PLASTIC LIMIT %					● WATER CONTENT %					△ LIQUID LIMIT %				
									10	20	30	40	50	10	20	30	40	50	10	20	30	40	50
									⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)														
									10	20	30	40	50										
0.0 1386.0								SURFACE ELEVATION: 1386															
	1	PA						FILL: (SC) Clayey Sand, trace Gravel, brown, moist.	● 7														
	2	PA									● 23												
		PA					4.0	(CL) Lean Clay, trace organics & roots, brown, wet.															
	3	SS								⊗ 11													
		PA																					
	4	SS								⊗ 11	● 11												
							8.5	(OL) ORGANIC CLAY, trace roots, brown, wet, medium.															
	5	SS								⊗ 7								● 47					
10.0 1376.0							10.0	End of Boring															

WATER LEVEL	THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.		
WATER LEVEL	BORING STARTED 03/10/09	BORING COMPLETED 03/10/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
WATER LEVEL	CAVE IN LEVEL		
WATER LEVEL	RIG CME 1050	CREW CHIEF Jason Yecoshenko	



SB-34

GEOTECHNICAL EVALUATION - BORING LOG

Page 1 of 1

PROJECT: DIA Parking Lots and Access Roads				CLIENT: Reynolds, Smith, & Hills, Inc.				TPT Job No.: 09M5059			
ARCHITECT - ENGINEER: Reynolds, Smith, & Hills, Inc.						SITE LOCATION: Duluth, Minnesota					
BORING NUMBER - LOCATION: SB-34 (offset 6' east) See sketch.								REPORT DATE: 4/2/09			

DEPTH (ft) ELEVATION (ft)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE	RECOVERY	WATER LEVEL	GRAPHIC LOG	STRATA CHANGE DEPTH	DESCRIPTION OF MATERIAL	UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)					
									1	2	3	4	5	
									★ PERCENT PASSING #200 SIEVE					
									10	20	30	40	50	
0.0 1386.0								SURFACE ELEVATION: 1386	○ UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²) ★ PERCENT PASSING #200 SIEVE × PLASTIC LIMIT % ● WATER CONTENT % △ LIQUID LIMIT % ⊗ STANDARD PENETRATION N-VALUE (BLOWS/FT)					
	1	PA						(SC) CLAYEY SAND, trace Gravel & Cobbles, brown, frozen to 5' then moist, medium dense.						
	2	PA												
		PA												
	3	SS												
		PA												
	4	SS												
	5	SS												
10.0 1376.0							10.0	End of Boring						

WATER LEVEL

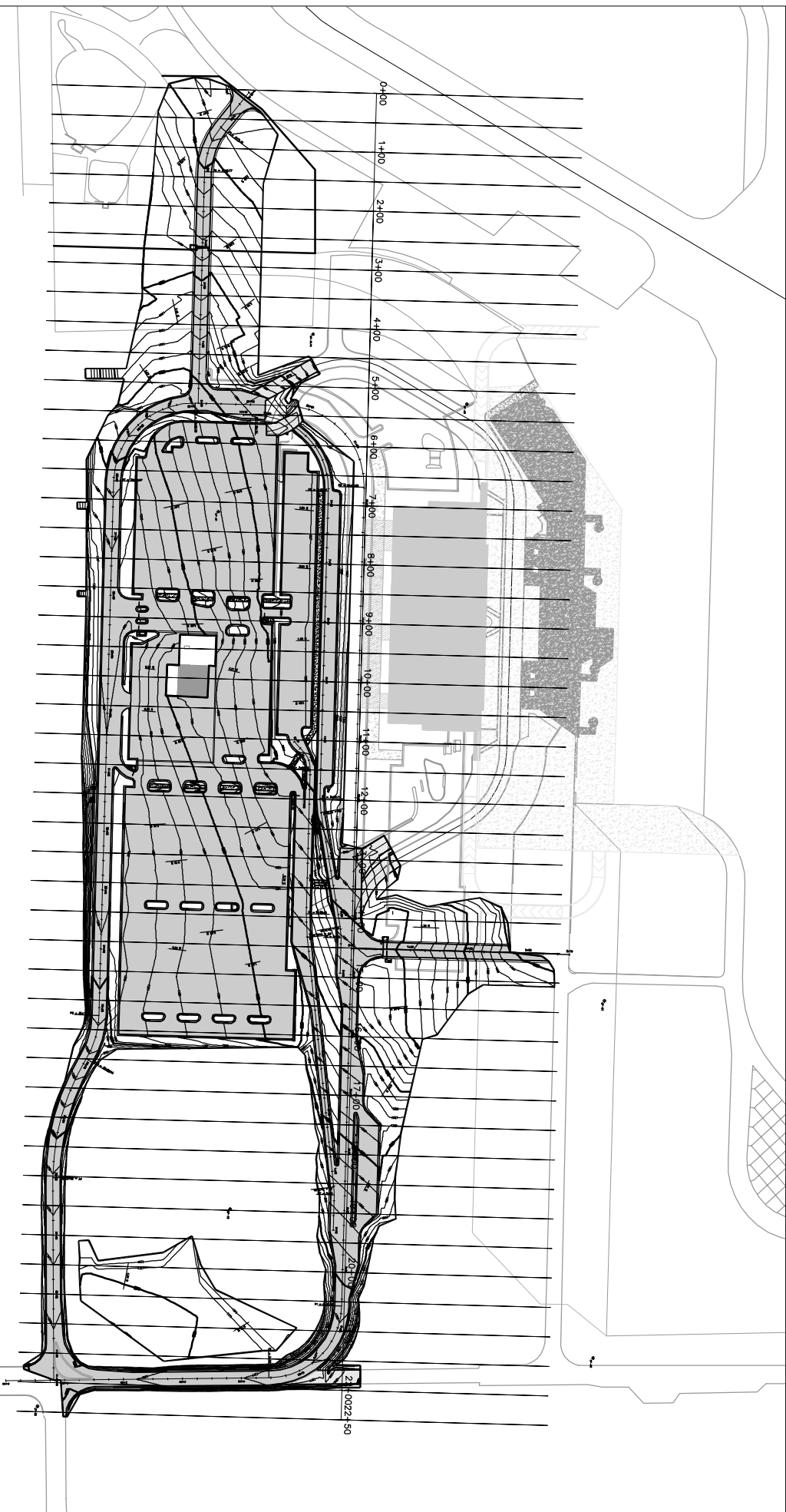
WATER LEVEL

WATER LEVEL

WATER LEVEL

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU, THE TRANSITION MAY BE GRADUAL.

BORING STARTED 03/10/09	BORING COMPLETED 03/10/09	ABBREVIATIONS: ACR-After Casing Removal, BCR-Before Casing Removal, FT-Fish Tail, AB-After Boring, WD-While Drilling, WS-While Sampling, DB-Diamond Bit, RB-Rock Bit, SS-Split Spoon, ST-Shelby Tube, PA-Power Auger, MR-Mud Rotary, CS-Continuous, WL-Water Level, WO-Wash Out, WOH-Weight of Hammer, EIL-Exceeds Instrument Level, TS-Topsoil, HP-Hydraulic Probe, PP-Pocket Penetrometer, TV-Torvane.
CAVE IN LEVEL		
RIG CME 1050	CREW CHIEF Jason Yecoshenko	



EARTH WORK EXHIBIT
SCALE 1" = 250'

STA	DIS	SF-C	CUFT	CUYD		SF-F	CUFT	CUYD
0+00		27.91				82.48		
	50		5811.00	215.22			3210.25	118.90
0+50		204.53				45.93		
	50		14842.50	549.72			1148.25	42.53
1+00		389.17				0.00		
	50		22594.50	836.83			0.00	0.00
1+50		514.61				0.00		
	50		30182.25	1117.86			0.00	0.00
2+00		692.68				0.00		
	50		40197.00	1488.78			0.00	0.00
2+50		915.20				0.00		
	50		53536.50	1982.83			0.00	0.00
3+00		1226.26				0.00		
	50		60052.00	2224.15			0.00	0.00
3+50		1175.82				0.00		
	50		69066.00	2558.00			0.00	0.00
4+00		1586.82				0.00		
	50		84057.50	3113.24			0.00	0.00
4+50		1775.48				0.00		
	50		101570.50	3761.87			0.00	0.00
5+00		2287.34				0.00		
	50		153763.25	5694.94			518.50	19.20
5+50		3863.19				20.74		
	50		189309.00	7011.44			3700.00	137.04
6+00		3709.17				127.26		
	50		187745.00	6953.52			4562.25	168.97
6+50		3800.63				55.23		
	50		183753.75	6805.69			2549.50	94.43
7+00		3549.52				46.75		
	50		165118.50	6115.50			2671.25	98.94
7+50		3055.22				60.10		
	50		131719.00	4878.48			2958.25	109.56
8+00		2213.54				58.23		
	50		92544.75	3427.58			2846.75	105.44
8+50		1488.25				55.64		
	50		47942.75	1775.66			10534.75	390.18
9+00		429.46				365.75		
	50		36107.00	1337.30			13273.25	491.60
9+50		1014.82				165.18		
	50		50975.00	1887.96			6127.75	226.95
10+00		1024.18				79.93		
	50		48699.75	1803.69			9444.50	349.80
10+50		923.81				297.85		
	50		34037.50	1260.65			13219.00	489.59
11+00		437.69				230.91		
	50		15258.50	565.13			10936.75	405.06
11+50		172.65				206.56		
	50		10669.75	395.18			14371.50	532.28
12+00		254.14				368.30		
	50		13800.75	511.14			20587.75	762.51
12+50		297.89				455.21		

	50		22842.50	846.02		24642.50	912.69
13+00		615.81			530.49		
	50		37634.50	1393.87		27000.75	1000.03
13+50		889.57			549.54		
	50		61327.00	2271.37		26983.75	999.40
14+00		1563.51			529.81		
	50		100708.75	3729.95		24855.75	920.58
14+50		2464.84			464.42		
	50		90465.50	3350.57		19810.75	733.73
15+00		1153.78			328.01		
	50		48205.25	1785.38		13898.75	514.77
15+50		774.43			227.94		
	50		34960.25	1294.82		25040.50	927.43
16+00		623.98			773.68		
	50		30617.25	1133.97		20475.25	758.34
16+50		600.71			45.33		
	50		23947.50	886.94		2290.75	84.84
17+00		357.19			46.30		
	50		18720.75	693.36		2216.50	82.09
17+50		391.64			42.36		
	50		21131.50	782.65		1893.00	70.11
18+00		453.62			33.36		
	50		24782.75	917.88		1625.75	60.21
18+50		537.69			31.67		
	50		22732.00	841.93		2835.00	105.00
19+00		371.59			81.73		
	50		16182.50	599.35		3290.50	121.87
19+50		275.71			49.89		
	50		21355.00	790.93		2529.75	93.69
20+00		578.49			51.30		
	50		30155.50	1116.87		3045.00	112.78
20+50		627.73			70.50		
	50		30356.00	1124.30		6286.25	232.82
21+00		586.51			180.95		
	50		24792.75	918.25		11678.00	432.52
21+50		405.20			286.17		
	50		28889.75	1069.99		7154.25	264.97
22+00		750.39			0.00		

CUFT

2533161.00

CUFT

350213.00

UNCLASSIFIED / CUT (CUYD) 93605.56

EMBANKMENT/ FILL (CUYD)

12851.95



CONSULTANTS
• ENVIRONMENTAL
• GEOTECHNICAL
• MATERIALS
• FORENSICS

REPORT OF GEOTECHNICAL EXPLORATION AND REVIEW

**Duluth International Airport Terminal
Duluth, Minnesota**

AET #07-04216.2

Date:

October 14, 2009

Prepared For:

Mr. John Hippchen, PE, LEED AP
Reynolds, Smith and Hills
4525 Airport Approach Road
Duluth, MN 55811





CONSULTANTS
· ENVIRONMENTAL
· GEOTECHNICAL
· MATERIALS
· FORENSICS

October 14, 2009

Mr. John Hippchen, PE, LEED AP
Reynolds, Smith and Hills
4525 Airport Approach Road
Duluth, MN 55811

Re: Geotechnical Exploration/Review
Proposed Duluth International Airport Terminal
Duluth, Minnesota
AET Project #07-04216.2

Dear Mr. Hippchen:

American Engineering Testing, Inc. (AET) has completed a subsurface exploration and geotechnical engineering review for the above referenced project. We are sending you two copies of our report. Our report documents the exploration/review results and provides our opinions and recommendations to aid you and your design team in planning and construction of the project.

AET appreciates this opportunity to serve you. As your project proceeds, we remain interested in providing additional consulting or testing services. If you have questions about the report, or if we can provide additional services for you, I can be reached at (218) 628-1518 or sleow@amengtest.com.

Sincerely,
American Engineering Testing, Inc.

Sara L. Leow, PE
Geotechnical Engineer

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AET PROJECT 07-04216.2
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STANDARD DATA SHEETS

- Excavation and Refilling for Structural Support
- Floor Slab Moisture/Vapor Protection
- Standard Recommendations for Utility Trench Backfilling
- Bedding/Foundation Support of Buried Pipe
- Freezing Weather Effects on Building Construction

APPENDIX

- Figure 1 – Approximate Test Boring Locations
- Logs of Test Borings
- Boring Log Notes
- Unified Soil Classification System
- Geologic Terminology

**GEOTECHNICAL EXPLORATION/REVIEW
DULUTH INTERNATIONAL AIRPORT TERMINAL
DULUTH, MINNESOTA
AET #07-04216.2**

INTRODUCTION

A new terminal building is planned to be constructed at the Duluth International Airport in Duluth, Minnesota. RS&H authorized American Engineering Testing, Inc. (AET) to conduct a subsurface exploration program and provide geotechnical engineering recommendations for this project. This report presents the field information we obtained at the site and our engineering recommendations.

To protect you, AET, and the public, we authorize use of opinions and recommendations in this report only by you and your project team for this specific project. Contact us if other uses are intended. Even though this report is not intended to provide sufficient information to accurately determine quantities and locations of particular materials, we recommend that your potential contractors be advised of the report availability.

Scope of Services

Our scope of services for this work, outlined in AET Proposal #07-04216.2 and authorized by you, consisted of:

- Arranging for the location of existing public underground utilities through the Gopher State One-Call System and the location of private utilities by a private utility locator.
- Performing ten standard penetration test (SPT) borings. The test borings were performed in general accordance with ASTM designation D1586, and soils classified in general accordance with ASTM D2487.
- Performing limited laboratory testing to aid in soil classification and assessment of soil engineering properties.
- Providing a geotechnical report that presents the results of the test borings, laboratory testing results, recommendations for proposed building foundations and fill, compaction levels, opinions regarding the construction of a retaining wall along the north side of the terminal, and groundwater management.

The scope of our work is intended for geotechnical purposes only. This scope is not intended to explore for the presence or extent of chemical contamination at the site.

PROJECT INFORMATION

Project Background

We understand RS&H is providing design services for the new terminal building at the Duluth International Airport. Information provided to us indicates the new terminal will be a slab-on-grade structure, constructed immediately to the south of the existing terminal. The overall dimensions of the proposed terminal building are approximately 180.5 feet by 330 feet. The new terminal building will be either steel or concrete construction, or a combination of both. You have indicated the tug ramps in the northeastern-most and northwestern-most corners of the building will not be heated, but all other areas of the terminal will be heated above 40 degrees Fahrenheit year-round.

The new terminal will be bordered by concrete aprons on the north and a departure/arrival service road on the south. The grade on the north side of the terminal will be raised 10 feet to 15 feet to match the grade of the existing aircraft apron. According to MBJ (project structural engineer), a sheet-pile retaining wall or mechanically stabilized earth (MSE) wall, may be considered to retain fill placed to raise the grade east and west of the north building wall.

Current structural plans indicate the new terminal will have up to three stories. The south side (front) of the terminal building will be a single-story, high-ceiling area for ticketing. The main entrance to the terminal will include an exterior canopy structure on the south side. The three-story portion of the structure will be situated in the central portion of the building, with the remaining two-story area on the north side of the building, next to the aircraft apron.

Our discussion with the project structural engineer indicates maximum column loads for the terminal are anticipated to be on the order of 500 to 600 kips. We understand that due to these relatively high loads, the structural engineer may want to explore the possibility of using foundation elements with

soil bearing pressures exceeding 5,000 pounds per square foot (psf).

Project Assumptions

The recommendations contained in this report are based on attaining a factor of safety of at least 3 with respect to localized shear or base failure of the foundations. We have also assumed allowable foundation settlements of 1 inch total and ½ inch differential are acceptable.

The presented project information represents our understanding of the proposed construction. This information is an integral part of our engineering review. It is important that you contact us if there are changes from that described so that we can evaluate whether modifications to our recommendations are appropriate.

SITE CONDITIONS

Surface Observations

On the dates the test borings were performed, the ground surface within the new terminal footprint was mainly covered by bituminous pavement for the existing long and short-term parking areas. The ground surface on the north side of the terminal footprint area was covered by grass. This ground surface slopes up from the parking lots to the passenger loading/unloading drive on the south side of the existing terminal.

Subsurface Soils/Geology

Logs of the test borings are included in the Appendix. Please refer to the logs for general information concerning soil layering, soil classification, geologic description, and moisture. Relative density or consistency is also noted, which is based on the standard penetration resistance (N-value).

The boring logs only indicate the subsurface conditions at the sampled locations. Variations often occur between and beyond borings.

The test borings indicate a generalized subsurface profile of existing fill overlying native soils comprised of till, coarse alluvium, and/or fine alluvium. Existing fill depths range between 1½ and

6 feet. Bituminous pavement, organic sandy silt, slightly organic silty sand, silty sand with gravel, lean clay with sand, and sand with silt and gravel compose the existing fill. Between 7¼ and 9½ inches of bituminous pavement was encountered at the ground surface in the test borings advanced in existing pavement areas.

Fine alluvium layers between 2 and 7½ feet thick were encountered in test borings 09-02 and 09-07. The fine alluvium consists of sandy silt and sandy silty clay. The recorded N-values indicate the non-cohesive (silt) fine alluvium is medium dense to dense, and the cohesive (clay) fine alluvium has a very stiff consistency.

Coarse alluvium was encountered in test borings 09-03, 09-04, 09-06, and 09-09. The coarse alluvium layer thicknesses range from 2½ and 9½ feet. The coarse alluvium consists of silty sand with gravel, gravelly sand, sand with silt and gravel, and gravelly sand with silt. Sand with silt between approximately 4 and 5.2 feet in test boring 09-07 may be fill. Based on the recorded N-values, the coarse alluvium is medium dense to very dense.

Till was encountered in each of the test borings, and is composed of silty sand and silty sand with gravel. The silty sand between approximately 2 and 6 feet in test boring 09-05 may be fill. Apparent cobbles were encountered in the till in test borings 09-02 and 09-03. The recorded N-values indicate the till is mainly medium dense to dense.

Auger refusal was encountered in test boring 09-03 at a depth of 20 feet and in test boring 09-09 at a depth of 13 feet. Auger refusal may have been caused by a cobble, a boulder, or bedrock. The cause of auger refusal cannot be documented without performing rock coring.

Water Level Measurements

Groundwater was encountered in test borings 09-02, 09-03, 09-04, 09-07, 09-09, and 09-10 between the depths of 4.4 and 16.5 feet after the boreholes were left open for up to 17 hours. Groundwater was not encountered in test borings 09-05, 09-06, or 09-08 during drilling or after the boreholes

were left open for 5 to 25 minutes. Based on the groundwater levels measured in the test borings, we anticipate groundwater may be present at frost-footing depth in some areas of the building excavation.

The silty sand, sandy silt, and sandy silty clay encountered in the test borings are considered slow draining to relatively impermeable, while the sand and sand with silt are considered fast draining and permeable. Groundwater will tend to flow through more permeable soils and perch on less permeable soils. Groundwater present in the less permeable soils may not have had enough time to collect and/or stabilize in the boreholes before they were abandoned. For this reason, water level measurements from the test borings may not be reliable for assessing the static groundwater level in the area. A discussion of the water level measurement methods is presented in the SUBSURFACE EXPLORATION section of this report.

Ground water levels usually fluctuate. Fluctuations occur due to varying seasonal and yearly rainfall and snow melt, as well as other factors.

LABORATORY TESTING

Limited laboratory testing was performed on select samples from the test borings. Laboratory testing consisted of measuring moisture content. The moisture content of selected samples is listed on the test boring logs in the column labeled 'WC.'

GEOTECHNICAL CONSIDERATIONS

The following considerations are the basis for the recommendations presented later in this report.

Review of Soil Properties

Strength/Stability

The existing fill is considered to have low strength and stability under the anticipated building loads. This is due to the undocumented nature in which fill was placed and the presence of organics. The fine alluvium, coarse alluvium, and till soils are considered to have high strength and stability beneath the anticipated building loads. If the native soils become disturbed or are subjected to

excess moisture, the strength and stability of these soils may decrease.

Compressibility

The existing fill soils are considered moderately to highly compressible beneath the anticipated structural loads. The coarse alluvium, fine alluvium, and till are considered to have moderately low to low compressibility potential.

Frost Susceptibility

Silty sand, sandy silt, sandy silty clay, and soils containing organics are considered highly frost susceptible due to their silt and/or organic content. Sand with silt and lean clay are considered moderately frost susceptible, while the sand is not considered frost susceptible.

Drainage Properties

The silty and clayey soils are considered to have a low permeability, and are slow to very slow draining. The sand and sand with silt soils are considered permeable, and are relatively fast draining.

RECOMMENDATIONS

Grading Procedures

Excavation

All existing fill and soils containing organics should be removed from the building foundation areas. All existing parking lot elements, such as bituminous pavement, curb, and gate structures, should also be removed from the building area. Any disturbed, wet, or soft soils should be removed from the foundation areas, as well. If an excavation extends below the bottom-of-foundation grade, a lateral zone of excavation should extend out horizontally at least 1 foot from the outside edge of perimeter foundations for every foot of new fill placed below the base of the footing (i.e. 1H:1V excavation oversize). This lateral oversize is to be measured at the base of the excavation, not at the surface.

The test borings indicate excavations may need to extend to depths of 6 feet in the building areas to remove existing fill. The required depths of excavation may be different than indicated by the test borings. Suitable excavation depths should be reviewed by a geotechnical engineer or engineering technician performing full-time observation and testing during site preparation.

Filling/Compaction

Where fill is needed to attain building grades, engineered fill should be used. Engineered fill should be a non-organic, granular material void of frozen soil, boulders, and debris. Excavated on-site soils void of organics, boulders, and debris can also be used as engineered fill if these soils have a moisture content suitable for attaining required compaction levels. Laboratory testing of select test boring samples indicate moisture contents of some of the on-site soils may be too high to attain required compaction levels. If used as engineered fill, these soils may need to be conditioned and reworked to reduce their moisture content to levels required for suitable compaction. Reducing the moisture content in silty and clayey soils is typically difficult to accomplish in the Duluth area due to a climate with limited days of drying weather.

Engineered fill should be placed in thin loose lifts and compacted to at least 95% of the maximum Modified Proctor dry density (ASTM D1557). Please refer to the attached standard data sheet entitled "Excavation and Refilling for Structural Support" for general information regarding excavation and fill placement for foundation support.

Building Foundation Support

After preparing the site according to the above building grading procedures, it is our judgment that wall and column loads for the proposed building can be supported by a spread footing system bearing on competent undisturbed fine alluvium, coarse alluvium, or till, or on engineered fill placed directly on these competent native soils. It is our opinion that strip footings and column footing pads placed on competent native soils, or compacted engineered fill placed directly on native soils, can be designed for an allowable bearing pressure of 5,000 psf. A coefficient of sliding friction of 0.45 can

be used between the foundations and native soils.

Strip footings should have a minimum width of 20 inches and column footings should have a minimum dimension of 3 feet. Perimeter footings supporting heated structures, and all footings supporting unheated structures, including the canopy, should extend at least 72 inches below final grade for frost protection. Interior column footings for heated structures should be embedded at least 12 inches below the bottom of the floor slab. A structure is considered heated if an indoor air temperature of at least 40° Fahrenheit is maintained year-round.

Faces of foundations supporting the canopy should be as smooth as possible to prevent adhesion of freezing soils to the sides of the foundations. A bond breaker, such as overlapping sheets of plastic, should be applied to foundation surfaces to minimize adhesion of frost susceptible soils.

It is our judgment that this foundation design will include a factor of safety of greater than 3 against shear or base failure. It is also our judgment that total and differential building settlement should be less than 1 inch and ½ inch, respectively.

Advanced Field Testing

It is our opinion that foundations for the proposed terminal building and can potentially be designed for foundation bearing pressures greater than 5,000 psf, based on previous geotechnical explorations AET has performed in similar soils in the Duluth area and at the Duluth International Airport. An advanced testing program AET uses to evaluate soils for heavy soil bearing pressures is in-situ testing with a pressuremeter (the pressuremeter test). We recommend performing pressuremeter testing if foundation loads exceeding 5,000 psf are considered for the proposed terminal building. Pressuremeter testing would be performed as a supplement to the test borings recently performed at the site.

North Wall Backfill and Drainage

Excavation and Backfill

Existing fill, including any elements of the existing terminal building, should be removed within 6 feet of the north building wall that is planned to be constructed into the hillside. Engineered fill should be used for backfill along the north wall. Backfill should consist of a non-frozen, granular material void of organics, boulders, rubble, and debris; also, clayey soils should be avoided as backfill behind the north wall.

To keep lateral earth pressures to a minimum, backfill within 6 horizontal feet of the wall should consist of non-frost susceptible (NFS) sand meeting the gradation in Table I, below. In green areas, the upper 1 foot of backfill should consist of a relatively impermeable soil, such as on-site soils or topsoil, to reduce infiltration of water into the backfill.

Table I: Non-Frost Susceptible Engineered Fill Gradation Recommendation

Sieve Size or Number	Percent Passing by Weight
2"	100
#4	90 - 100
#40	10 - 40
#200	0 - 6

Backfill in zones below future non-aircraft pavement areas should be compacted to at least 90% of the Modified Proctor density. In future aircraft pavement areas, backfill should meet aircraft pavement design criteria for soil gradations and compaction levels. Compaction should be observed by a geotechnical engineer or engineering technician under the supervision of a geotechnical engineer.

Drainage

Suitable drainage should be provided behind the north wall to keep moisture from collecting in the backfill. Moisture retained in the backfill adds to the lateral pressure exerted on the wall. Also, upon freezing, additional pressures can be exerted on the wall from the expansion of moisture in the backfill. The drainage system should allow infiltrating moisture (from both the ground surface and hillside) to migrate through the backfill to a drainage system at the base of the wall. Drainage along the wall can be accomplished by entirely backfilling with free-draining sand, or incorporating layers and/or zones of free-draining sand and/or geosynthetic drainage mats in the backfill. The NFS engineered fill specified by the gradation in Table I is considered free-draining fill.

Retaining Walls

Sheetpile Walls

The encountered soil conditions indicate that installation of sheetpile for the retaining walls may be limited by the dense to very dense till soils that were encountered in the test borings. As indicated in two of the test borings performed at the terminal building site, and based on past projects at the airport, boulders and cobbles are common in the till soils in the airport area. The presence of boulders and cobbles can also cause construction difficulties such as sheetpile obstruction or deflection.

If sheetpile are installed for the retaining walls, the grading, backfill, and drainage should follow the recommendations in the 'North Wall Backfill and Drainage' section.

MSE Walls

It is our opinion the site is suitable for MSE wall construction. Grading procedures, backfill integrated into the MSE wall system, and backfill drainage should also follow the recommendations described above in the 'North Wall Backfill and Drainage' section. Grading procedures should encompass the entire area of reinforced soil. Design of reinforcement and facing may also influence the selection of wall backfill type.

MSE wall reinforcement and facing are typically designed by an MSE wall contractor. Selection of MSE wall facing should consider exposure to deicing chemicals from the aircraft apron, and from any parking areas near the walls. Some MSE wall designs also include a footing to support the wall facing and reduce the potential for direct impacts to the facing from maintenance equipment, such as snow plows. Similar to the building footings, MSE wall footings can be designed for an allowable bearing pressure of 5,000 psf if constructed on competent, native soils or engineered fill over native soils.

Lateral Earth Pressures

Lateral earth pressures acting upon north terminal wall and retaining walls will differ depending on the backfill composition. Table II below provides lateral earth pressure recommendations for NFS sand, and Table III provides lateral earth pressure recommendations for silty sand soil (e.g. till soils at the site). Backfill soils other than those listed below will result in different earth pressure values. The values shown in Tables II and III also do not include any surcharge loads that may be present behind the north building wall and retaining walls, such as surcharge loads from aircraft, the aircraft pavement section, and aircraft support vehicles and equipment.

Table II: Estimated Lateral Earth Pressure Parameters for NFS Engineered Fill

Soil Condition	Coefficient of Lateral Earth Pressure	Equivalent Fluid Weight - Drained (pcf)	Equivalent Fluid Weight - Saturated (pcf)
At Rest	0.47	55	88
Active	0.31	40	80
Passive	3.25	390	235

Table III: Estimated Lateral Earth Pressure Parameters for Silty Sand Soil

Soil Condition	Coefficient of Lateral Earth Pressure	Equivalent Fluid Weight - Drained (pcf)	Equivalent Fluid Weight - Saturated (pcf)
At Rest	0.5	65	95
Active	0.33	45	85
Passive	3.0	390	265

Floor Slab Support

Excavation of unsuitable soils from the building areas, and replacement of the excavated soils with engineered fill as described above, will prepare the area for floor slab support. If the floor slab is constructed over existing fill, there is a potential for cracking to occur in the slab. The risk of cracking can be reduced by removing the existing fill from floor slab areas. The risk of floor slab cracking can also be reduced in unheated areas by removing frost susceptible soils to a depth of 6 feet below final grade, and backfilling with NFS sand.

The floor slab should be constructed on a layer of clean sand fill meeting the gradation for NFS sand in Table I. The clean sand layer should have a thickness of at least 6 inches to provide a capillary break for moisture. All engineered fill supporting the floor slab should be compacted to a minimum of 95% of Modified Proctor density. This includes utility and foundation trench backfill in floor slab areas.

A value of 300 lb/in³ can be used as the modulus of subgrade reaction for floor slab design over the recommended engineered fill. If moisture sensitive floor coverings are used, a polyethylene vapor membrane can provide added moisture protection beneath the floor slab. For standard recommendations pertaining to moisture and vapor protection of the building floor slab, we refer you to the attached standard sheet entitled "Floor Slab Moisture/Vapor Protection."

Site Drainage

We recommend that site grades be established that promote drainage of surface water away from the

planned terminal building. Also, the building should be equipped with a sufficient collection system that collects precipitation from the roof and directs it away from the building and associated pavement areas.

Utility Construction

Care should be taken to ensure that utilities outside the building are designed with sufficient flexibility to accommodate potential differential movements than can occur between frozen and unfrozen soils. As utilities enter building areas, they cross a transition from a frost susceptible zone to a zone not susceptible to freezing, which can result in local differential movement within the transition zone. We recommend that utility lines be provided with a minimum of 7 feet of soil cover for protection from frost. If utilities are placed at shallower depths, they should be protected from frost with insulation.

Standard data sheets entitled “Standard Recommendations for Utility Trench Backfilling” and “Bedding/Foundation Support of Buried Pipe” are also included with this report. These standard sheets provide recommendations for backfill materials and placement of backfill in trenches.

CONSTRUCTION CONSIDERATIONS

Potential Difficulties

Cobbles and Boulders

Apparent cobbles were encountered in two test borings, and auger refusal was encountered in test borings 09-03 and 09-09. Cobbles and boulders are common in till soils, and shallow bedrock has been observed in past excavations at the airport. Cobbles, boulders, or bedrock may be present within planned excavation areas, and could present excavation difficulties or problems for the construction of the building and underground utilities.

Runoff Water in Excavations

The silty and clayey soils encountered in the borings are likely to perch water during periods of wet

weather. To allow observation of the excavation bottom, reduce the potential for soil disturbance, and to facilitate filling operations, we recommend that all free-standing water within the excavations be removed prior to proceeding with construction. Based on the soils encountered, we anticipate that any groundwater which enters the excavations can be handled with conventional sump pumping.

Soil Disturbance

The soils encountered in the test borings are susceptible to disturbance and weakening when exposed to construction equipment and/or foot traffic, especially when moist or saturated. If soils do become disturbed, they should be carefully excavated and be replaced with compacted, engineered fill.

Cold Weather Construction

If construction occurs during freezing temperatures, there are certain precautions that should be considered for placement of fill and backfilling around structures. We refer you to the attached sheet entitled “Freezing Weather Effects on Building Construction” for information regarding cold weather precautions.

Temporary Sidesloping and Shoring

Temporary sideslopes should be excavated in accordance with OSHA Regulations (Standards 29 CFR), Part 1926, Subpart P, “Excavations” (can be found on www.osha.gov). Sideslopes should be protected to prevent erosion. Further testing and geotechnical review should be performed where temporary sideslopes are designed to be steeper than OSHA Regulations applicable to site soil types.

If used, temporary shoring should be designed by a professional structural engineer. Geotechnical recommendations for temporary shoring are beyond the scope of services for this report, but can be provided by AET, if requested.

Observation and Testing

The recommendations in this report are based on the subsurface conditions found at our test boring locations. Since the soil conditions can be expected to vary away from the soil boring locations, we

recommend on-site observations by a geotechnical engineer, or the engineer's representative, during construction to evaluate the effect of these potential changes.

We recommend that all foundation excavations be observed by a geotechnical engineer immediately prior to placement of engineered fill or concrete. The soils at the site are very susceptible to disturbance from moisture or construction traffic, and should be protected until a final observation can be made immediately prior to engineered fill or concrete. Soil density testing should also be performed on all fill placed at the site to document that project recommendations or specifications for compaction and moisture have been satisfied. Where fill material type is important, sieve analysis tests should be performed to document the actual fill meets the recommended gradation criteria.

SUBSURFACE EXPLORATION

General

Our subsurface exploration program included advancing ten standard penetration test (SPT) borings at the site on September 15th and 16th, 2009. The approximate locations of the borings are shown on the Figure 1 sketch in the Appendix. The test boring elevations were not available as of the date of this report.

Drilling Methods

The standard penetration test borings were advanced using 3¼ inch inside diameter hollow stem augers. The boreholes were backfilled in compliance with Minnesota Department of Health regulations.

Sampling Methods

Split-Spoon Samples (SS)

Standard Penetration (split-spoon) samples were collected in general accordance with ASTM D1586. This method consists of driving a 2" O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30". The sampler is driven a total of 18" into the soil.

After an initial set of 6 inches, the number of hammer blows to drive the sampler the final 12 inches is known as the Standard Penetration resistance or N-value.

Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Classification Methods

Soil classifications shown on the boring logs are generally based on the Unified Soil Classification System (USCS). The USCS is described in ASTM D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, classifications per ASTM D2487 are possible. Otherwise, soil classifications shown on the boring logs are visual-manual judgments. We have attached charts in the Appendix illustrating the USCS, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include judgments of the geologic depositional origin. This judgment is primarily based on observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation and development can sometimes aid this judgment.

Water Level Observations

The water level measurements are shown at the bottom of the boring logs. The following information appears under “Water Level Measurements” on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered

- **Drilling Fluid Level:** same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

Sample Storage

We will retain representative samples of the soils recovered from the borings for a period of 30 days. The samples will then be discarded unless you notify us otherwise.

LIMITATIONS

The data derived through the exploration program have been used to develop our opinions about the subsurface conditions at your site. However, because no exploration program can reveal totally what is in the subsurface, conditions between borings and between samples and at other times, may differ from conditions described in this report. The exploration we conducted identified subsurface conditions only at those points where we took samples or observed ground water conditions. Depending on the sampling methods and sampling frequency, every soil layer may not be observed, and some materials or layers which are present in the ground may not be noted on the boring logs.

If conditions encountered during construction differ from those indicated by our borings, it may be necessary to alter our conclusions and recommendations, or to modify construction procedures, and the cost of construction may be affected.

The extent and detail of information about the subsurface condition are directly related to the scope of the exploration. It should be understood, therefore, that information can be obtained by means of additional exploration.

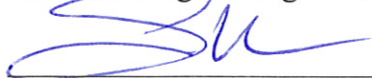
STANDARD OF CARE

Our services for your project have been conducted to those standards considered normal for services of this type at this time and location. Other than this, no warranty, express or implied, is intended.

SIGNATURES

We have appreciated the opportunity to provide our services for this project. If you have questions regarding this report, or if we may provide additional assistance, please contact us.

Report Prepared by:
American Engineering Testing, Inc.



Sara L. Leow, PE
Geotechnical Engineer
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Report Reviewed by:
American Engineering Testing, Inc.



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EXCAVATION AND REFILLING FOR STRUCTURAL SUPPORT

EXCAVATION

Excavations for structural support at soil boring locations should be taken to depths recommended in the geotechnical report. Since conditions can vary, recommended excavation depths between and beyond the boring locations should be evaluated by geotechnical field personnel. If ground water is present, the excavation should be dewatered to avoid the risk of unobservable poor soils being left in-place. Excavation base soils may become disturbed due to construction traffic, ground water or other reasons. Such soils should be subcut to underlying undisturbed soils. Where the excavation base slopes steeper than 4:1, the excavation bottom should be benched across the slope parallel to the excavation contour.

Soil stresses under footings spread out with depth. Therefore, the excavation bottom and subsequent fill system should be laterally oversized beyond footing edges to support the footing stresses. A lateral oversize equal to the depth of fill below the footing (i.e., 1:1 oversize) is usually recommended. The lateral oversize is usually increased to 1.5:1 where compressible organic soils are exposed on the excavation sides. Variations in oversize requirements may be recommended in the geotechnical report or can be evaluated by the geotechnical field personnel.

Unless the excavation is retained, the backslopes should be maintained in accordance with OSHA Regulations (Standards - 29 CFR), Part 1926, Subpart P, "Excavations" (found on www.osha.gov). Even with the required OSHA sloping, ground water can induce sideslope raveling or running which could require that flatter slopes or other approaches be used.

FILLING

Filling should proceed only after the excavation bottom has been approved by the geotechnical engineer/technician. Approved fill material should be uniformly compacted in thin lifts to the compaction levels specified in the geotechnical report. The lift thickness should be thin enough to achieve specified compaction through the full lift thickness with the compaction equipment utilized. Typical thicknesses are 6" to 9" for clays and 12" to 18" for sands. Fine grained soils are moisture sensitive and are often wet (water content exceeds the "optimum moisture content" defined by a Proctor test). In this case, the soils should be scarified and dried to achieve a water content suitable for compaction. This drying process can be time consuming, labor intensive, and requires favorable weather.

Select fill material may be needed where the excavation bottom is sensitive to disturbance or where standing water is present. Sands (SP) which are medium to coarse grained are preferred, and can be compacted in thicker lift thicknesses than finer grained soils.

Filling operations for structural support should be closely monitored for fill type and compaction by a geotechnical technician. Monitoring should be on a full-time basis in cases where vertical fill placement is rapid; during freezing weather conditions; where ground water is present; or where sensitive bottom conditions are present.

EXCAVATION/REFILLING DURING FREEZING TEMPERATURES

Soils that freeze will heave and lose density. Upon thawing, these soils will not regain their original strength and density. The extent of heave and density loss depends on the soil type and moisture condition; and is most pronounced in clays and silts. Foundations, slabs, and other improvements should be protected from frost intrusion during freezing weather. For earthwork during freezing weather, the areas to be filled should be stripped of frozen soil, snow and ice prior to new fill placement. In addition, new fill should not be allowed to freeze during or after placement. For this reason, it may be preferable to do earthwork operations in small plan areas so grade can be quickly attained instead of large areas where much frost stripping may be needed.

FLOOR SLAB MOISTURE/VAPOR PROTECTION

Floor slab design relative to moisture/vapor protection should consider the type and location of two elements, a granular layer and a vapor membrane (vapor retarder, water resistant barrier or vapor barrier). In the following sections, the pros and cons of the possible options regarding these elements will be presented, such that you and your specifier can make an engineering decision based on the benefits and costs of the choices.

GRANULAR LAYER

In American Concrete Institute (ACI) 302.1-96, a “base material” is recommended, rather than the conventional cleaner “sand cushion” material. The manual maintains that clean sand (common “cushion” sand) is difficult to compact and maintain until concrete placement is complete. ACI recommends a clean, fine graded material (with at least 10% to 30% of particles passing a #100 sieve) which is not contaminated with clay, silt or organic material. We refer you to ACI 302.1-96 for additional details regarding the requirements for the base material.

In cases where potential static water levels or significant perched water sources appear near or above the floor slab, an underfloor drainage system may be needed wherein a daintile system is placed within a thicker clean sand or gravel layer. Such a system should be properly engineered depending on subgrade soil types and rate/head of water inflow.

VAPOR MEMBRANE

The need for a vapor membrane depends on whether the floor slab will have a vapor sensitive covering, will have vapor sensitive items stored on the slab, or if the space above the slab will be a humidity controlled area. If the project does not have this vapor sensitivity or moisture control need, placement of a vapor membrane may not be necessary. Your decision will then relate to whether to use the ACI base material or a conventional sand cushion layer. However, if any of the above sensitivity issues apply, placement of a vapor membrane is recommended. Some floor covering systems (adhesives and flooring materials) require a vapor membrane to maintain a specified maximum slab moisture content as a condition of their warranty.

VAPOR MEMBRANE/GRANULAR LAYER PLACEMENT

A number of issues should be considered when deciding whether to place the vapor membrane above or below the granular layer. The benefits of placing the slab on a granular layer, with the vapor membrane placed **below** the granular layer, include **reduction** of the following:

- Slab curling during the curing and drying process.
- Time of bleeding, which allows for quicker finishing.
- Vapor membrane puncturing.
- Surface blistering or delamination caused by an extended bleeding period.
- Cracking caused by plastic or drying shrinkage.

The benefits of placing the vapor membrane **over** the granular layer include the following:

- The moisture emission rate is achieved faster.
- Eliminates a potential water reservoir within the granular layer above the membrane.
- Provides a “slip surface”, thereby reducing slab restraint and the associated random cracking.

If a membrane is to be used in conjunction with a granular layer, the approach recommended depends on slab usage and the construction schedule. The vapor membrane should be placed above the granular layer when:

- Vapor sensitive floor covering systems are used or vapor sensitive items will be directly placed on the slab.
- The area will be humidity controlled, but the slab will be placed before the building is enclosed and sealed from rain.
- Required by a floor covering manufacturer’s system warranty.

The vapor membrane should be placed below the granular layer when:

- Used in humidity controlled areas (without vapor sensitive coverings/stored items), with the roof membrane in place, and the building enclosed to the point where precipitation will not intrude into the slab area. Consideration should be given to slight sloping of the membrane to edges where daintile or other disposal methods can alleviate potential water sources, such as pipe or roof leaks, foundation wall damp proofing failure, fire sprinkler system activation, etc.

There may be cases where membrane placement may have a detrimental effect on the subgrade support system (e.g., expansive soils). In these cases, your decision will need to weigh the cost of subgrade options and the performance risks.

STANDARD RECOMMENDATIONS FOR UTILITY TRENCH BACKFILLING

GENERAL

Clayey and silty soils are often difficult to compact, as they may be naturally wet or may become wet due to ground water or surface/rain water during construction. Soils will need to be placed within a certain range of water (moisture) content to attain desired compaction levels. Moisture conditioning to within this range can be time consuming, labor intensive, and requires favorable weather.

The degree of compaction and the soil type used for backfill within open cut utility trenches depends on the function of the overlying land surface. Details are as follows:

ROADWAYS

Where trenches are located below roadways, we recommend using inorganic fill and compacting these soils per Mn/DOT Specification 2105.3F1 (Specified Density Method). This specification requires 100% of the Standard Proctor density in the upper one meter subgrade zone, and 95% below this. Note that this specification includes moisture content range requirements which are important for proper subgrade stability.

Where available soils are wet or of poor quality, it may be possible to use the "Quality Compaction Method" (Mn/DOT Specification 2105.3F2) for soils below the upper one meter subgrade zone if you can tolerate some subsidence. However, a high level of stability is still important within the upper subgrade zone and recommend that the "Specified Density Method" be used in this upper subgrade area. We caution that if backfill soils in the lower trench area are significantly unstable, it may be difficult or even impossible to properly compact soils within the upper one meter subgrade zone. In this case, placing a geotextile fabric directly over the unstable soils can aid in offsetting the instability.

STRUCTURAL AREAS

If fill is placed beneath or within the significant zone of influence of a structure (typically a 1:1 lateral oversize zone), the soil type and minimum compaction level will need to be evaluated on an individual basis. Because trenches result in variable fill depths over a short lateral distance, higher than normal compaction levels and/or more favorable (sandy) soil fill types may be needed. If this situation exists, it is important that special geotechnical engineering review be performed.

NON-STRUCTURAL AREAS

In grass/ditch areas, backfill soils should be placed in reasonable lift thicknesses and compacted to a minimum of 90% of the Standard Proctor density (ASTM:D698) and/or per the Mn/DOT "Quality Compaction Method." If lower compaction levels are attained, more noticeable subsidence at the surface can occur. Steep or high slopes require special consideration.

BEDDING/FOUNDATION SUPPORT OF BURIED PIPE

GENERAL

This page addresses soil bedding and foundation support of rigid pipe, such as reinforced concrete, and flexible pipe, such as steel and plastic. This does not address selection of pipe based on loads and allowable deflections, but rather addresses the geotechnical/soil aspects of uniform pipe support. Bedding/foundation support needs relate to local conditions directly beneath and to the sides of the pipe zone, which may be influenced by soft in-situ ground conditions or by soil disturbance due to soil sensitivity or ground water. Bedding relates to granular materials placed directly beneath the bottom of the pipe (usually 4" to 6" thick), which is intended to provide increased support uniformity. We refer to foundation soils as thicker layers of sands and/or gravels (beneath the bedding zone) intended to provide increased foundation strength support, usually needed due to soft, unstable and/or waterbearing conditions.

GRANULAR BEDDING

With circular pipes, high local loads (approaching point loads) develop if pipes are placed on hard surfaces. Load distribution is improved by placing granular bedding materials beneath the pipe, which are either shaped to match the pipe bottom or are placed without compaction to allow "settling in." The bedding should be placed in such a manner that the pipe will be at the proper elevation and slope when the pipe is laid on the bedding. Common bedding material is defined in Mn/DOT Specification 3149.2F, Granular Bedding. Published documents recommend rigid pipes having a diameter of 12" to 54" be placed on a bedding thickness of 4", which increases to 6" of bedding for pipe diameters ranging from 54" to 72". Beyond a 72" diameter, the bedding thickness can be equal to the pipe outside diameter divided by 12. Typically, the need for bedding under small diameter pipes (less than 12") depends on the pipe designer's specific needs, although in obvious point loads situations (bedrock, cobbles, significant coarse gravel content), bedding is recommended. Note that bedding should also account for larger diameter bells at joints.

FOUNDATION FILL

Positive uniform strength is usually compromised in soft or unstable trench bottom conditions. In this case, deeper subcuts and foundation fill placement is needed beneath the pipe. In moderate instability conditions, improvement can likely be accomplished with a thicker bedding layer. However, in more significant instability situations, particularly where ground water is present, coarser materials may be needed to provide a stronger foundation. Thicker gravel layers can also be a favorable media from which to dewater. The following materials would be appropriate for stability improvement, with the coarser materials being appropriate for higher instability/ground water cases.

- C Fine Filter Aggregate – Mn/DOT Specification 3149.2J

- C Coarse Filter Aggregate –Mn/DOT Specification 3149.2H

When using a coarser material which includes significant void space, we highly recommend enveloping the entire gravel layer within a geotextile fabric. The gravel material includes open void space, and the fabric acts as a separator which minimizes the intrusion of fines into the open void space. If an additional granular bedding sand is used above foundation gravel, the fabric would also prevent downward infiltration of bedding sand into the rock void space.

Although it is preferred to not highly compact thin granular bedding zones directly beneath the pipe center, it is desirable to compact the foundation materials to prevent more significant pipe settlement. We recommend foundation fill be compacted to a minimum of 95% of the Standard Proctor density (ASTM:D698). It is not possible to test coarse rock fill, although this material should still be well compacted/ tamped.

Often, pipes entering structures such as catch basins, lift stations, etc., enter the structure at a higher elevation than the structure bottom, and are therefore placed on the structure backfill. Fill beneath these pipes should be considered foundation fill. Depending on the flexibility of the connection design, it may be necessary to increase the minimum compaction level to reduce differential settlements, particularly with thicker fills.

SIDE FILL SUPPORT

If the pipe designer requires support from the side fill, granular bedding should also be placed along the sides of the pipe. In poor soil conditions, the sand fill may need to be placed laterally up to two pipe diameters on both sides of the pipe. With rigid pipe, compacted sand placement up to the spring line (within the haunch area) is usually sufficient. With flexible pipe, side fill should be placed and compacted at least to the top of the pipe. For positive support, it is very important to properly compact the sands within the haunch area.

FREEZING WEATHER EFFECTS ON BUILDING CONSTRUCTION

GENERAL

Because water expands upon freezing and soils contain water, soils which are allowed to freeze will heave and lose density. Upon thawing, these soils will not regain their original strength and density. The extent of heave and density/strength loss depends on the soil type and moisture condition. Heave is greater in soils with higher percentages of fines (silts/clays). High silt content soils are most susceptible, due to their high capillary rise potential which can create ice lenses. Fine grained soils generally heave about 1/4" to 3/8" for each foot of frost penetration. This can translate to 1" to 2" of total frost heave. This total amount can be significantly greater if ice lensing occurs.

DESIGN CONSIDERATIONS

Clayey and silty soils can be used as perimeter backfill, although the effect of their poor drainage and frost properties should be considered. Basement areas will have special drainage and lateral load requirements which are not discussed here. Frost heave may be critical in doorway areas. Stoops or sidewalks adjacent to doorways could be designed as structural slabs supported on frost footings with void spaces below. With this design, movements may then occur between the structural slab and the adjacent on-grade slabs. Non-frost susceptible sands (with less than 12% passing a #200 sieve) can be used below such areas. Depending on the function of surrounding areas, the sand layer may need a thickness transition away from the area where movement is critical. With sand placement over slower draining soils, subsurface drainage would be needed for the sand layer. High density extruded insulation could be used within the sand to reduce frost penetration, thereby reducing the sand thickness needed. We caution that insulation placed near the surface can increase the potential for ice glazing of the surface.

The possible effects of adfreezing should be considered if clayey or silty soils are used as backfill. Adfreezing occurs when backfill adheres to rough surfaced foundation walls and lifts the wall as it freezes and heaves. This occurrence is most common with masonry block walls, unheated or poorly heated building situations and clay backfill. The potential is also increased where backfill soils are poorly compacted and become saturated. The risk of adfreezing can be decreased by placing a low friction separating layer between the wall and backfill.

Adfreezing can occur on exterior piers (such as deck, fence or other similar pier footings), even if a smooth surface is provided. This is more likely in poor drainage situations where soils become saturated. Additional footing embedment and/or widened footings below the frost zones (which include tensile reinforcement) can be used to resist uplift forces. Specific designs would require individual analysis.

CONSTRUCTION CONSIDERATIONS

Foundations, slabs and other improvements which may be affected by frost movements should be insulated from frost penetration during freezing weather. If filling takes place during freezing weather, all frozen soils, snow and ice should be stripped from areas to be filled prior to new fill placement. The new fill should not be allowed to freeze during transit, placement or compaction. This should be considered in the project scheduling, budgeting and quantity estimating. It is usually beneficial to perform cold weather earthwork operations in small areas where grade can be attained quickly rather than working larger areas where a greater amount of frost stripping may be needed. If slab subgrade areas freeze, we recommend the subgrade be thawed prior to floor slab placement. The frost action may also require reworking and recompaction of the thawed subgrade.

Appendix

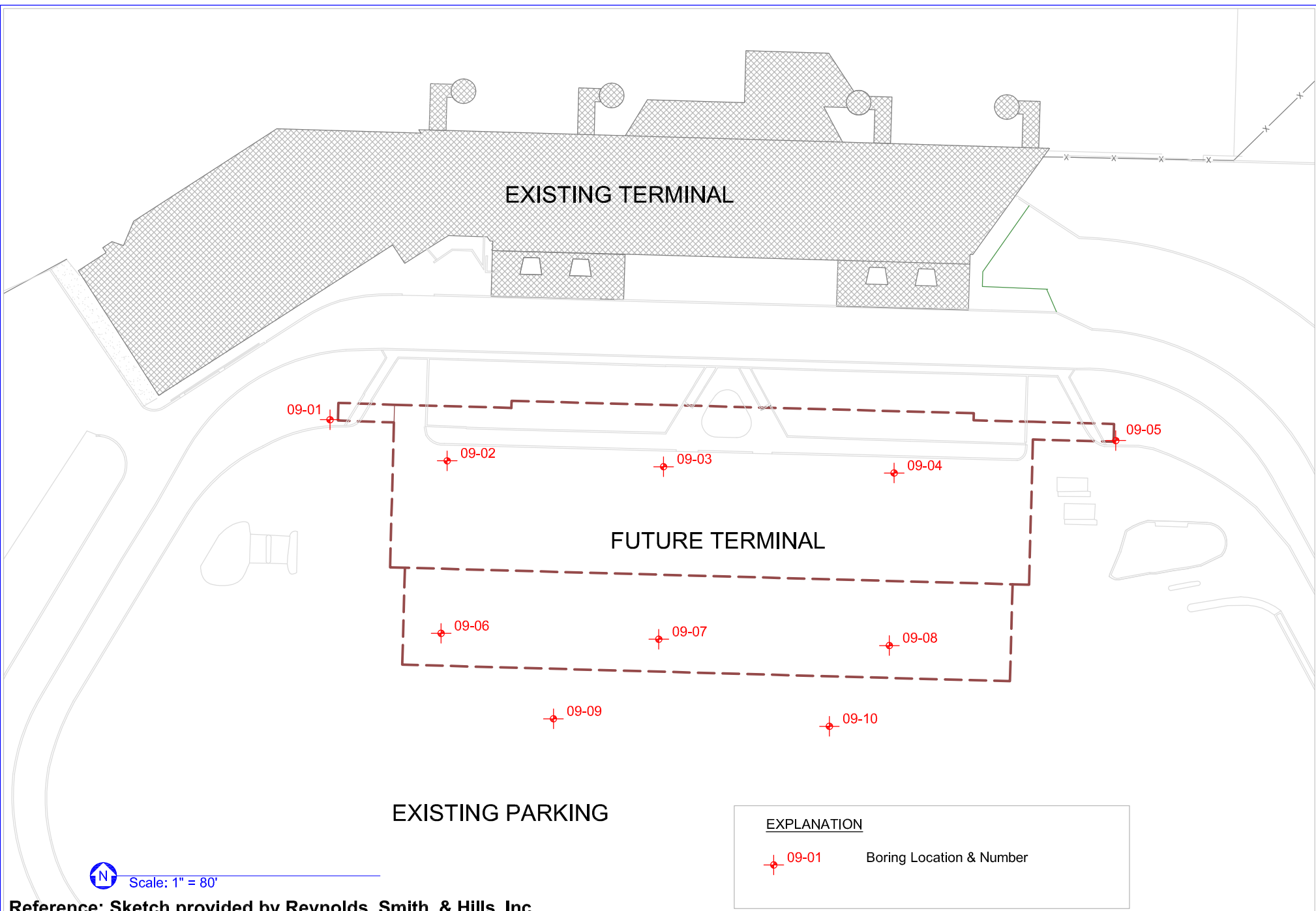
Figure 1 –Approximate Test Boring Locations

Logs of Test Borings

Boring Log Notes


Unified Soil Classification System

Geologic Terminology



Reference: Sketch provided by Reynolds, Smith, & Hills, Inc.

EXPLANATION	
	09-01 Boring Location & Number

	PROJECT NO.	07-04216.02
	ALTERED BY:	DWA
	CHECKED BY:	
	DATE:	10/06/09
FIGURE NO.	APPROXIMATE BORING LOCATIONS	

DULUTH INTERNATIONAL AIRPORT TERMINAL
Duluth, Minnesota





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SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-01 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
1	FILL, organic sandy silt with roots, dark brown	FILL		M	SU						
2	FILL, coarse sand and gravel, dark brown (pea rock)			M	SS	3					
3			4	M	SS						
4	SILTY SAND, dark brown, moist, medium dense (SM)	TILL		M	SS	16	11				
5			21	M	SS						
6				M	SS	18					
7	SILTY SAND, a little gravel, dark brown, moist to wet, medium dense (SM)		18	M	SS						
8				M	SS	12					
9			23	M	SS						
10				M	SS	0					
11	SILTY SAND, dark brown, moist with wet lenses, very dense to dense (SM)		60	M	SS						
12				M	SS	9					
13			46	W	SS						
14											
15											
16	END OF BORING AT 16.0 FEET Borehole backfilled with auger cuttings										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-14½'	3.25" HSA	9/16/09	8:43	13.5	12.0	11.8	---	11.0	
		9/16/09	8:50	16.0	14.5	14.5	---	11.4	
BORING COMPLETED: 9/16/09		9/16/09	8:59	16.0	None	3.0	---	None	
DR: LA LG: TDD Rig: 51									



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SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-02 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
	Bituminous Pavement - 9½" thickness	PAVEMENT			SU						
1	FILL, silty sand with gravel, dark brown	FILL	12	M	SS	2					
2	FILL, lean clay with sand, a little gravel, reddish brown		8	M	SS	8					
3	SILTY SAND, a little gravel, dark brown, moist, medium dense to dense, lenses of sandy silt below about 8' (SM)		17	M	SS	13	12				
4		TILL	31	M	SS	13					
5			22	M	SS	16					
6											
7											
8											
9	SANDY SILT, dark brown, moist, medium dense (ML)	FINE ALLUVIUM	24	M	SS	16					
10			31	M	SS	14					
11	SANDY SILT, dark brown, moist, dense, laminations of light brown fine grained sand and reddish brown lean clay (ML)		44	M/W	SS	17					
12											
13											
14		TILL	22/0.5'	M	SS	4					
15			50/0.2'								
16											
17											
18											
19	SILTY SAND WITH GRAVEL, apparent cobbles, dark brown, moist with wet lenses, dense (SM)	TILL									
20											
21											
22											
23											
24											
25	END OF BORING AT 25.2 FEET Borehole backfilled with auger cuttings and bituminous patch										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-24½'	3.25" HSA								
		9/15/09	10:22	25.2	24.5	25.2	---	None	
		9/15/09	10:35	25.2	None	20.0	---	None	
BORING COMPLETED: 9/16/09		9/15/09	15:30	25.2	None	17.0	---	16.0	
DR: LA LG: TDD Rig: 51		9/16/09	9:10	25.2	None	4.5	---	4.4	















SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-03 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
								WC	DD	LL	PL	%-#200
	Bituminous Pavement - 8" thickness		PAVEMENT									
1	FILL, sand with silt and gravel, dark brown		FILL		M	SU						
2	SILTY SAND WITH GRAVEL, dark brown, moist, medium dense (SM)			21	M		14					
3												
4												
5												
6	GRAVELLY SAND, medium to coarse grained, brown, moist, dense to very dense (SP)		COARSE ALLUVIUM	32	M		9					
7												
8												
9												
10	GRAVELLY SILTY SAND, brown, moist with wet lenses, very dense (SM)			74	M/W		5					
11												
12												
13												
14	SILTY SAND WITH GRAVEL, apparent cobbles, dark brown, moist with wet lenses to wet, very dense (SM)		TILL	67	M/W		10					
15												
16												
17												
18	GRAVELLY SAND WITH SILT, dark brown, wet (SP-SM)			58	W		10					
19												
20												
	AUGER REFUSAL AT 20.0 FEET Borehole backfilled with auger cuttings and bituminous patch											

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-20'	3.25" HSA	9/15/09	11:15	13.5	12.0	12.0	---	11.5	
		9/15/09	11:23	16.0	14.5	14.7	---	7.7	
BORING COMPLETED: 9/15/09		9/15/09	12:06	16.0	None	6.5	---	6.4	
DR: LA LG: TDD Rig: 51									



SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-04 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
1	Bituminous Pavement - 7/4" thickness	PAVEMENT									
2	FILL, silty sand with gravel, dark brown	FILL		M	SU						
3	SANDY SILT, light brown, moist (ML)										
4	LEAN CLAY, reddish brown, laminations of silt (CL)	FINE ALLUVIUM	9	M	SS	16					
5	SILTY SAND, a little gravel, fine to medium grained, dark brown, moist (SM)	COARSE ALLUVIUM	33	M	SS	8					
6	SILTY SAND, a little gravel, dark brown, moist with wet lenses, medium dense, lenses of silty clay below about 9' (SM)		15	M/W	SS	18	13				
7											
8											
9											
10		TILL	4/0.5' 16/0.5' 50/0.2'	M/W	SS	8					
11	SILTY SAND WITH GRAVEL, dark brown, moist with wet lenses, medium dense, lenses of gravelly sand with silt and silty clayey sand with gravel (SM)		18	M/W	SS	13					
12											
13											
14	GRAVELLY SAND WITH SILT, fine to coarse grained, dark brown, wet, medium dense (SP-SM)	COARSE ALLUVIUM	19	W	SS	5					
15											
16											
17											
18											
19	SILTY SAND WITH GRAVEL, dark brown, wet, dense to very dense (SM)		42	W	SS	7					
20											
21											
22		TILL									
23											
24											
25			56	W	SS	11					
26	END OF BORING AT 26.0 FEET Borehole backfilled with auger cuttings and bituminous patch										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-24 1/2'	3.25" HSA	9/15/09	13:43	21.0	19.5	20.5	---	13.8	
		9/15/09	14:09	26.0	None	16.0	---	11.0	
BORING COMPLETED: 9/15/09									
DR: LA LG: TDD Rig: 51									



SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-05 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
1	FILL, slightly organic silty sand with roots, dark brown	FILL	15	M	SU	15					
2	FILL, medium to coarse sand with gravel, brown			M	SS						
3	SILTY SAND WITH GRAVEL, dark brown, moist, medium dense, trace roots above about 2.5' (SM) (may be fill)	TILL OR FILL	14	M	SS	11					
4				M	SS						
5				M	SS						
6	SILTY SAND, a little gravel, dark brown, moist, medium dense (SM)	TILL	22	M	SS	11					
7				M	SS						
8				M	SS						
9	SILTY SAND WITH GRAVEL, dark brown, moist, dense (SM)	TILL	30	M	SS	15					
10				M	SS						
11				M	SS						
12	SILTY SAND, a little gravel, dark brown, moist, medium dense (SM)	TILL	37	M	SS	5					
13				M	SS						
14				M	SS						
15	SILTY SAND, a little gravel, dark brown, moist, medium dense (SM)	TILL	29	M	SS	17					
16				M	SS						
16	END OF BORING AT 16.0 FEET Borehole backfilled with auger cuttings										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-14½'	3.25" HSA	9/15/09	14:57	16.0	14.5	15.0	---	None	
		9/15/09	15:03	16.0	None	12.7	---	None	
BORING COMPLETED: 9/15/09									
DR: LA LG: TDD Rig: 51									







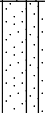

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SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-06 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
								WC	DD	LL	PL	%-#200
1	Bituminous Pavement - 8½" thickness		PAVEMENT		M	SU						
2	FILL, silty sand with gravel, dark brown		FILL	14	M	SS	8					
3	SILTY SAND, a little gravel, dark brown, moist, medium dense to dense (SM)		TILL	17	M	SS	10	13				
4												
5				21	M	SS	14					
6												
7												
8				36	M	SS	14					
9	SAND WITH SILT AND GRAVEL, fine to coarse grained, dark brown, wet, dense (SP-SM)		COARSE ALLUVIUM									
10				39	W	SS	10					
11	SILTY SAND WITH GRAVEL, dark brown, wet, dense (SM)		TILL									
12				44	M	SS	9					
13												
14												
15				43	M	SS	18					
16	END OF BORING AT 16.0 FEET Borehole backfilled with auger cuttings and bituminous patch <i>Boring offset 3' N of staked location</i>											

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-14½'	3.25" HSA	9/16/09	9:56	16.0	14.5	15.0	---	None	
		9/16/09	10:03	16.0	None	10.7	---	None	
BORING COMPLETED: 9/16/09									
DR: LA LG: TDD Rig: 51									












SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-07 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
	Bituminous Pavement - 8" thickness	 PAVEMENT									
1	FILL, silty sand with gravel, dark brown			M	SU						
2											
3			10	M	SS	11					
4	SAND WITH SILT AND GRAVEL, fine to medium grained, dark brown, moist, medium dense (SP-SM) (may be fill)										
5			16	M	SS	12					
6	SILTY SAND WITH GRAVEL, dark brown, moist (SM)										
7											
8	SANDY SILTY CLAY, brown, moist, very stiff, lenses of reddish brown sandy lean clay (CL-ML)										
9			22	M	SS	14	21				
10	SAND WITH SILT AND GRAVEL, medium to coarse grained, dark brown, wet, medium dense (SP-SM)										
11			22	W	SS	7					
12	SILTY SAND WITH GRAVEL, fine to coarse grained, dark brown, wet (SM)										
13			34	W	SS	13					
14	SANDY SILT, dark brown, wet, dense to medium dense (ML)										
15											
16			23	W	SS	13					
17	SILTY SAND WITH GRAVEL, dark brown, wet, very dense (SM)										
18											
19											
20			79	W	SS	10					
21											
22											
23	SILTY SAND, a little gravel, dark brown, wet, dense (SM)										
24											
25			48	W	SS	14					
26	END OF BORING AT 26.0 FEET Borehole backfilled with auger cuttings and bituminous patch										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-24½'	3.25" HSA	9/16/09	11:10	11.0	9.5	9.5	---	7.5	
		9/16/09	11:45	26.0	24.5	24.5	---	16.5	
BORING COMPLETED: 9/16/09									
DR: LA LG: TDD Rig: 51									



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SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-08 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
1	Bituminous Pavement - 7½" thickness	PAVEMENT									
2	FILL, silty sand with gravel, dark brown, apparent cobbles below about 2'	FILL	50/0.3'	M	SU						
3					SS	0					
4											
5	SILTY SAND, a little gravel, dark brown, moist, medium dense (SM)	TILL	18	M	SS	13	11				
6											
7											
8				M	SS	12					
9											
10	SILTY SAND WITH GRAVEL, dark brown, moist with wet lenses, medium dense to dense (SM)	TILL	18	M/W	SS	5					
11											
12											
13					SS	0					
14											
15		TILL	35								
16				M/W	SS	16					
16	END OF BORING AT 16.0 FEET Borehole backfilled with auger cuttings and bituminous patch										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-14½'	3.25" HSA	9/16/09	13:30	16.0	14.5	14.5	---	None	
		9/16/09	13:35	16.0	None	11.0	---	None	
BORING COMPLETED: 9/16/09									
DR: LA LG: TDD Rig: 51									








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SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-09 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DD	LL	PL	%-#200
	Bituminous Pavement - 9½" thickness	 PAVEMENT									
1	FILL, mostly silty sand with gravel, a little clayey sand, brown	 FILL	11	M	SU						
2				M	SS	2					
3				M	SS						
4	SILTY SAND, a little gravel, lenses of sandy silt, dark brown, moist, medium dense (SM)	 TILL	18	M	SS	14	14				
5				M	SS						
6	GRAVELLY SAND WITH SILT, fine to coarse grained, dark brown, wet, dense (SP-SM)	 COARSE ALLUVIUM	37	W	SS	11					
7				W	SS						
8	SILTY SAND, a little gravel, dark brown, moist with wet lenses, medium dense (SM)	 TILL	21	M	SS	15					
9				M	SS						
10				M	SS						
11											
12											
13	AUGER REFUSAL AT 13.0 FEET Borehole backfilled with auger cuttings and bituminous patch										

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-13'	3.25" HSA								
		9/16/09	15:10	11.0	9.5	9.5	---	None	
		9/16/09	15:23	12.5	13.0	13.0	---	None	
BORING COMPLETED: 9/16/09		9/16/09	15:30	12.5	None	7.5	---	7.0	
DR: LA LG: TDD Rig: 51									









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SUBSURFACE TEST BORING LOG

AET JOB NO: **07-04216.2**

LOG OF BORING NO. **09-10 (p. 1 of 1)**

PROJECT: **Duluth International Airport Terminal; Duluth, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION		GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
								WC	DD	LL	PL	%-#200
	Bituminous Pavement - 8" thickness		PAVEMENT									
1	FILL, silty sand with gravel, dark brown		FILL		M	SU						
2	FILL, silty sand with gravel, trace roots, brown and dark brown			17	M	SS	14					
3												
4												
5				11		SS	0					
6	SILTY SAND WITH GRAVEL, brown, moist, medium dense, lenses of sandy silt (SM)		TILL									
7												
8				22		SS	17	11				
9												
10				15		SS	12					
11	SILTY SAND WITH GRAVEL, dark brown, wet, medium dense, lenses of sand with silt above about 12' (SM)		TILL									
12				19	M/W	SS	10					
13												
14												
15				28	W	SS	10					
16	END OF BORING AT 16.0 FEET Borehole backfilled with auger cuttings and bituminous patch											

DEPTH: DRILLING METHOD		WATER LEVEL MEASUREMENTS							NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL	
0-14½'	3.25" HSA								
		9/16/09	14:20	13.5	12.0	12.0	---	11.0	
		9/16/09	14:31	16.0	None	11.0	---	8.5	
BORING COMPLETED: 9/16/09									
DR: LA LG: TDD Rig: 51									

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS

Symbol	Definition
B,H,N:	Size of flush-joint casing
CA:	Crew Assistant (initials)
CAS:	Pipe casing, number indicates nominal diameter in inches
CC:	Crew Chief (initials)
COT:	Clean-out tube
DC:	Drive casing; number indicates diameter in inches
DM:	Drilling mud or bentonite slurry
DR:	Driller (initials)
DS:	Disturbed sample from auger flights
FA:	Flight auger; number indicates outside diameter in inches
HA:	Hand auger; number indicates outside diameter
HSA:	Hollow stem auger; number indicates inside diameter in inches
LG:	Field logger (initials)
MC:	Column used to describe moisture condition of samples and for the ground water level symbols
N (BPF):	Standard penetration resistance (N-value) in blows per foot (see notes)
NQ:	NQ wireline core barrel
PQ:	PQ wireline core barrel
RD:	Rotary drilling with fluid and roller or drag bit
REC:	In split-spoon (see notes) and thin-walled tube sampling, the recovered length (in inches) of sample. In rock coring, the length of core recovered (expressed as percent of the total core run). Zero indicates no sample recovered.
REV:	Revert drilling fluid
SS:	Standard split-spoon sampler (steel; 1d" is inside diameter; 2" outside diameter); unless indicated otherwise
SU:	Spin-up sample from hollow stem auger
TW:	Thin-walled tube; number indicates inside diameter in inches
WASH:	Sample of material obtained by screening returning rotary drilling fluid or by which has collected inside the borehole after falling through drilling fluid
WH:	Sampler advanced by static weight of drill rod and 140-pound hammer
WR:	Sampler advanced by static weight of drill rod
94mm:	94 millimeter wireline core barrel
?	Water level directly measured in boring
I:	Estimated water level based solely on sample appearance

TEST SYMBOLS

Symbol	Definition
CONS:	One-dimensional consolidation test
DEN:	Dry density, pcf
DST:	Direct shear test
E:	Pressuremeter Modulus, tsf
HYD:	Hydrometer analysis
LL:	Liquid Limit, %
LP:	Pressuremeter Limit Pressure, tsf
OC:	Organic Content, %
PERM:	Coefficient of permeability (K) test; F - Field; L - Laboratory
PL:	Plastic Limit, %
q _p :	Pocket Penetrometer strength, tsf (<u>approximate</u>)
q _c :	Static cone bearing pressure, tsf
q _u :	Unconfined compressive strength, psf
R:	Electrical Resistivity, ohm-cms
RQD:	Rock Quality Designation of Rock Core, in percent (aggregate length of core pieces 4" or more in length as a percent of total core run)
SA:	Sieve analysis
TRX:	Triaxial compression test
VS _R :	Vane shear strength, remoulded (field), psf
VS _U :	Vane shear strength, undisturbed (field), psf
WC:	Water content, as percent of dry weight
%-200:	Percent of material finer than #200 sieve

STANDARD PENETRATION TEST NOTES

The standard penetration test consists of driving the sampler with a 140 pound hammer and counting the number of blows applied in each of three 6" increments of penetration. If the sampler is driven less than 18" (usually in highly resistant material), permitted in ASTM:D1586, the blows for each complete 6" increment and for each partial increment is on the boring log. For partial increments, the number of blows is shown to the nearest 0.1' below the slash.

The length of sample recovered, as shown on the AREC@column, may be greater than the distance indicated in the N column. The disparity is because the N-value is recorded below the initial 6" set (unless partial penetration defined in ASTM:D1586 is encountered) whereas the length of sample recovered is for the entire sampler drive (which may even extend more than 18").

UNIFIED SOIL CLASSIFICATION SYSTEM

ASTM Designations: D 2487, D2488

**AMERICAN
ENGINEERING
TESTING, INC.**



Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$Cu \geq 4$ and $1 < Cc \leq 3^E$	GW	Well graded gravel ^F
			$Cu < 4$ and/or $1 > Cc > 3^E$	GP	Poorly graded gravel ^F
	Gravels with Fines more than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F,G,H}	
		Fines classify as CL or CH	GC	Clayey gravel ^{F,G,H}	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines ^D	$Cu \geq 6$ and $1 < Cc \leq 3^E$	SW	Well-graded sand ^I
			$Cu < 6$ and $1 > Cc > 3^E$	SP	Poorly-graded sand ^I
Fine-Grained Soils 50% or more passes the No. 200 sieve (see Plasticity Chart below)	Sils and Clays Liquid limit less than 50	inorganic	Fines classify as ML or MH	SM	Silty sand ^{G,H,I}
			Fines classify as CL or CH	SC	Clayey sand ^{G,H,I}
		organic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{K,L,M}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{K,L,M}
	Sils and Clays Liquid limit 50 or more	inorganic	Liquid limit—oven dried <0.75 Liquid limit – not dried	OL	Organic clay ^{K,L,M,N} Organic silt ^{K,L,M,O}
		organic	PI plots on or above "A" line	CH	Fat clay ^{K,L,M}
			PI plots below "A" line	MH	Elastic silt ^{K,L,M}
Highly organic soil		Primarily organic matter, dark in color, and organic in odor		OH	Organic clay ^{K,L,M,P} Organic silt ^{K,L,M,Q}
				PT	Peat ^R

^ABased on the material passing the 3-in (75-mm) sieve.

^BIf field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^CGravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

^DSands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

^E $Cu = D_{60} / D_{10}$, $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^FIf soil contains $\geq 15\%$ sand, add "with sand" to group name.

^GIf fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^HIf fines are organic, add "with organic fines" to group name.

^IIf soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^JIf Atterberg limits plot is hatched area, soils is a CL-ML silty clay.

^KIf soil contains 15 to 29% plus No. 200 add "with sand" or "with gravel", whichever is predominant.

^LIf soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.

^MIf soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^NPI ≥ 4 and plots on or above "A" line.

^OPI < 4 or plots below "A" line.

^PPI plots on or above "A" line.

^QPI plots below "A" line.

^RFiber Content description shown below.

SIEVE ANALYSIS

Equation of "A"-line
Horizontal at PI = 4 to LL = 25.5,
then PI = 0.73 (LL-20)

Equation of "U"-line
Vertical at LL = 16 to PI = 7,
then PI = 0.9 (LL-8)

$C_u = \frac{D_{60}}{D_{10}} = \frac{15}{2.5} = 200$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}} = \frac{2.5^2}{0.075 \times 15} = 5.6$

PLASTICITY CHART

For classification of fine-grained soils and fine-grained fraction of coarse-grained soils.

Equation of "A"-line
Horizontal at PI = 4 to LL = 25.5,
then PI = 0.73 (LL-20)

Equation of "U"-line
Vertical at LL = 16 to PI = 7,
then PI = 0.9 (LL-8)

Regions: CL or OL, CH or OH, CL-ML

Plasticity Chart

Notes

^ABased on the material passing the 3-in (75-mm) sieve.

^BIf field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^CGravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

^DSands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

^E $Cu = D_{60} / D_{10}$, $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^FIf soil contains $\geq 15\%$ sand, add "with sand" to group name.

^GIf fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^HIf fines are organic, add "with organic fines" to group name.

^IIf soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^JIf Atterberg limits plot is hatched area, soils is a CL-ML silty clay.

^KIf soil contains 15 to 29% plus No. 200 add "with sand" or "with gravel", whichever is predominant.

^LIf soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.

^MIf soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

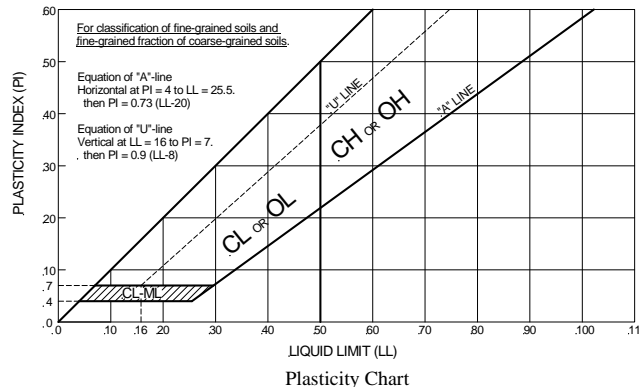
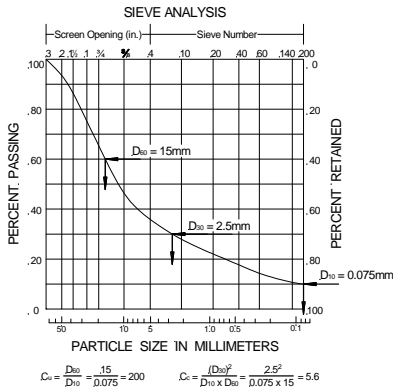
^NPI ≥ 4 and plots on or above "A" line.

^OPI < 4 or plots below "A" line.

^PPI plots on or above "A" line.

^QPI plots below "A" line.

^RFiber Content description shown below.



ADDITIONAL TERMINOLOGY NOTES USED BY AET FOR SOIL IDENTIFICATION AND DESCRIPTION

Grain Size		Gravel Percentages		Consistency of Plastic Soils		Relative Density of Non-Plastic Soils	
Term	Particle Size	Term	Percent	Term	N-Value, BPF	Term	N-Value, BPF
Boulders	Over 12"	A Little Gravel	3% - 14%	Very Soft	less than 2	Very Loose	0 - 4
Cobbles	3" to 12"	With Gravel	15% - 29%	Soft	2 - 4	Loose	5 - 10
Gravel	#4 sieve to 3"	Gravelly	30% - 50%	Firm	5 - 8	Medium Dense	11 - 30
Sand	#200 to #4 sieve			Stiff	9 - 15	Dense	31 - 50
Fines (silt & clay)	Pass #200 sieve			Very Stiff	16 - 30	Very Dense	Greater than 50
				Hard	Greater than 30		
Moisture/Frost Condition		Layering Notes		Fiber Content of Peat		Organic/Roots Description (if no lab tests)	
(MC Column)				Fiber Content (Visual Estimate)			
D (Dry):	Absence of moisture, dusty, dry to touch.	Laminations:	Layers less than 1/2" thick of differing material or color.	Term		Soils are described as <i>organic</i> , if soil is not peat and is judged to have sufficient organic fines content to influence the soil properties. <i>Slightly organic</i> used for borderline cases.	
M (Moist):	Damp, although free water not visible. Soil may still have a high water content (over "optimum").	Lenses:	Pockets or layers greater than 1/2" thick of differing material or color.	Fibric Peat:	Greater than 67%	With roots:	Judged to have sufficient quantity of roots to influence the soil properties.
W (Wet/ Waterbearing):	Free water visible intended to describe non-plastic soils. Waterbearing usually relates to sands and sand with silt.			Hemic Peat:	33 - 67%	Trace roots:	Small roots present, but not judged to be in sufficient quantity to significantly affect soil properties.
F (Frozen):	Soil frozen			Sapric Peat:	Less than 33%		

GEOLOGIC TERMINOLOGY (SOILS)

General categories of geologic deposits used, descriptive information and common soil types is as follows:

FILL (F): Soils, rock and/or waste products placed or disturbed by man rather than through geologic processes. Mixed soils are usually easy to identify. Uniform material is more difficult, and signs such as small inclusions, underlying topsoil, topography or knowledge of below grade improvements (e.g., basement backfill, utility trenches, etc.) may be needed to properly judge. When mixed condition is stratified horizontally, the soil may be a weathered natural soil rather than fill.

TOPSOIL (TS): Upper darker colored layer formed by weathering of inorganic soil and accumulation of organic material. Usually black, dark brown, dark gray or dark grayish brown. Often transitions from darker to lighter color.

SLOPEWASH (SW): Organic and/or inorganic materials (sometimes interlayered) washed from slopes and redeposited. Usually stratified. Will be located in depressed areas where they can be washed in from slopes. When topsoil layers are thick in depressed areas, there is a good chance the soil is slopewash.

SWAMP DEPOSITS (SD): Highly organic material (peats and organic clays) which are formed through accumulation of organic material under water. **Peat, Organic clay**

COARSE ALLUVIUM (CA): Sandy (and gravelly). Stratified. Deposited from fast moving waters in streams and rivers. Includes glacial outwash. **Sand, Sand with silt, Silty sand, Gravels**

FINE ALLUVIUM (FA): Clayey and/or silty. Stratified. Deposited from slow moving waters in streams, rivers, lakes and ponds. Includes glacial outwash. **Lean clay, Fat clay, Silty clay, Silt, Sandy silt**

MIXED ALLUVIUM (MA): Combination of Fine and Coarse Alluvium. **Clayey sand, Sandy lean clay**, interlayered CA/FA

LACUSTRINE (LAC): Fine grained lake bed deposits (lakes may or may not still be in existence). Usually in very flat topography. **Fat clay, Lean clay, Silty clay, Silt**

LOESS (LOESS): Uniform, non-stratified, silty material (or very fine sand) which is deposited by wind. Can include significant clay content, and grain contacts may be cemented by clay or calcareous (limestone/chalky) material. **Silt, Sandy silt, Silty clay, Lean clay**

TILL (T): Normally contains a wide range of grain sizes, from boulders through clay. Usually non-stratified (not sorted through water action). Deposited directly from glaciers. **Silty sand, Clayey sand, Sandy lean clay**, usually contains gravel

WEATHERED TILL (WT): Tills which have been altered by exposure to the action of frost, water, or chemicals. Often softer than underlying soils. May be stratified with varying colors/soil types due to filling in or other changes in frost lensed zones.

COLLUVIUM (COL): Dominantly gravel, boulders and rock slabs, sometimes intermixed or layered with soils. Deposited from gravity flow down hills or cliffs.



CONSULTANTS
· ENVIRONMENTAL
· GEOTECHNICAL
· MATERIALS
· FORENSICS

January 29, 2010

Mr. John Hippchen, PE, LEED AP
Reynolds, Smith, and Hills
4525 Airport Approach Road, Suite A
Duluth, MN 55811

Re: Duluth International Airport Terminal
Pressuremeter Testing
Duluth, Minnesota
AET Project #07-04216.3

Dear Mr. Hippchen,

This letter presents the results of field pressuremeter testing and engineering review American Engineering Testing, Inc. (AET) performed for the new Duluth International Airport Terminal in Duluth, Minnesota. This letter is an addendum to our "Report of Geotechnical Exploration and Review," AET #07-04216.2 dated October 14, 2009 (October 14 Report), that was prepared for the new airport terminal.

Background Information

The project structural engineer (MBJ) has indicated current structural plans for the new terminal structure that will include up three stories. The front (south side) of the terminal building will be a single-story, high-ceiling area for ticketing. The main entrance to the terminal will include an exterior canopy structure on the south side of the building leading to the ticketing area. The three-story portion of the structure will be situated in the central portion of the building, with the remaining area on the north side of the building, next to the apron, being two stories. MBJ indicated maximum column loads for the terminal are anticipated to be on the order of 500 to 600 kips.

The October 14 Report presented our geotechnical recommendations for the new airport terminal building. Our foundation recommendations for the terminal building included an allowable soil pressure of 5,000 pounds per square foot (psf). RS&H and MBJ expressed interest in the possibility of designing foundation elements with a higher soil pressure. RS&H authorized AET to perform pressuremeter testing at the planned terminal site to assess the ability of subgrade soils to support a greater foundation bearing pressure.

Field Methods

AET performed three pressuremeter tests within the new terminal building footprint on December 16, 2009. The pressuremeter tests were used to measure strength (pressuremeter limit pressure) and strain (pressuremeter modulus) properties of subsurface soils at the planned terminal site. The measured pressuremeter limit and modulus properties were used to evaluate the potential bearing capacity and settlement of foundations with bearing pressures exceeding 5,000 psf. Pressuremeter tests were performed in boreholes offset from test borings 09-03 and 09-07. Two borings were offset from test boring 09-03 due to soil caving conditions in the borehole. The pressuremeter tests were conducted in general accordance with ASTM:D4719, Method A (Equal Pressure Method).

At the pressuremeter test locations, the borehole was extended with a drill rig using 3.25 inch inside-diameter hollow stem auger. A 3 inch outside diameter split-spoon sampler was driven to create the hole for the pressuremeter probe. The pressuremeter probe was then inserted into the hole to the desired test depth.

Pressuremeter Test Method and Results

Numerous strain readings were recorded for each test, with the pressure to the probe increased for each incremental reading. As the pressure is increased, the probe expands within the borehole causing the soil in the sides of the borehole to deform. The pressure is incrementally increased until the maximum volume of the probe is reached, or the soil has been tested beyond desired bearing capacity. For the pressuremeter test performed in borehole 09-03B, the probe membrane failed prior to reaching the pressure limit value.

The pressuremeter test results are plotted on a graph as a pressuremeter curve and a yield pressure curve. An apparent limit pressure is estimated from the yield pressure curve of the corrected pressure versus the normalized probe volume change. The pressuremeter modulus (E) is calculated from the slope of the straight line portion of this pressuremeter curve. The results of the pressuremeter testing are presented in Table I, below.

Table I: Pressuremeter Test Results

Boring Number	Test Depth (ft)	Net Limit Pressure (tsf)	Pressuremeter Modulus (tsf)
09-03B	11-13	13.0	209
09-07A	12.5-14.5	20.0	506
09-07A	18.5-20.6	24.5	672

Mr. John Hippchen, PE, LEED AP
Duluth International Airport Terminal
January 29, 2010
AET #07-04216.3
Page 3 of 3

Recommendations

Based on our engineering review of the pressuremeter test results, it is our opinion foundations for the new airport terminal building can be designed for a maximum soil bearing pressure of 8,000 psf, if constructed directly on undisturbed native soils. Any native soils that become disturbed should be excavated down to undisturbed soils. Foundation grades should be attained with a concrete fill capable of supporting foundation pressures of 8,000 psf. Perimeter footings, and any footings in unheated structures, should extend to a minimum of 72 inches below the final grade. Interior footings in heated structures should be embedded a minimum of 48 inches below at-grade slab. Other recommendations in the October 14 Report remain applicable. It is our judgment that this foundation design will include a factor of safety of greater than 3 against shear or base failure. It is also our judgment that total and differential building settlement should be less than 1 inch and ½ inch, respectively.

As previously discussed in the October 14 Report, we recommend foundation excavations be observed by a geotechnical engineer prior to placing foundation concrete. The geotechnical engineer should review foundation excavations for the presence of disturbed soils.

Closing

We appreciate the opportunity to provide additional geotechnical engineering services for this project. If you have questions, or if we can be of additional service, please contact us. We can be reached at (218) 628-1518.

American Engineering Testing, Inc.



Sara L. Leow, PE
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Senior Geotechnical Engineer
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Attachments: Figure 1: Boring Locations for Pressuremeter Testing
Pressuremeter Test Results



DULUTH INTERNATIONAL AIRPORT TERMINAL
Duluth, Minnesota

APPROXIMATE BORING LOCATIONS

PROJECT NO. 07-04216.03
DWA
SLL
1/26/10
ALTERED BY:
CHECKED BY:
DATE:

1
FIGURE NO.

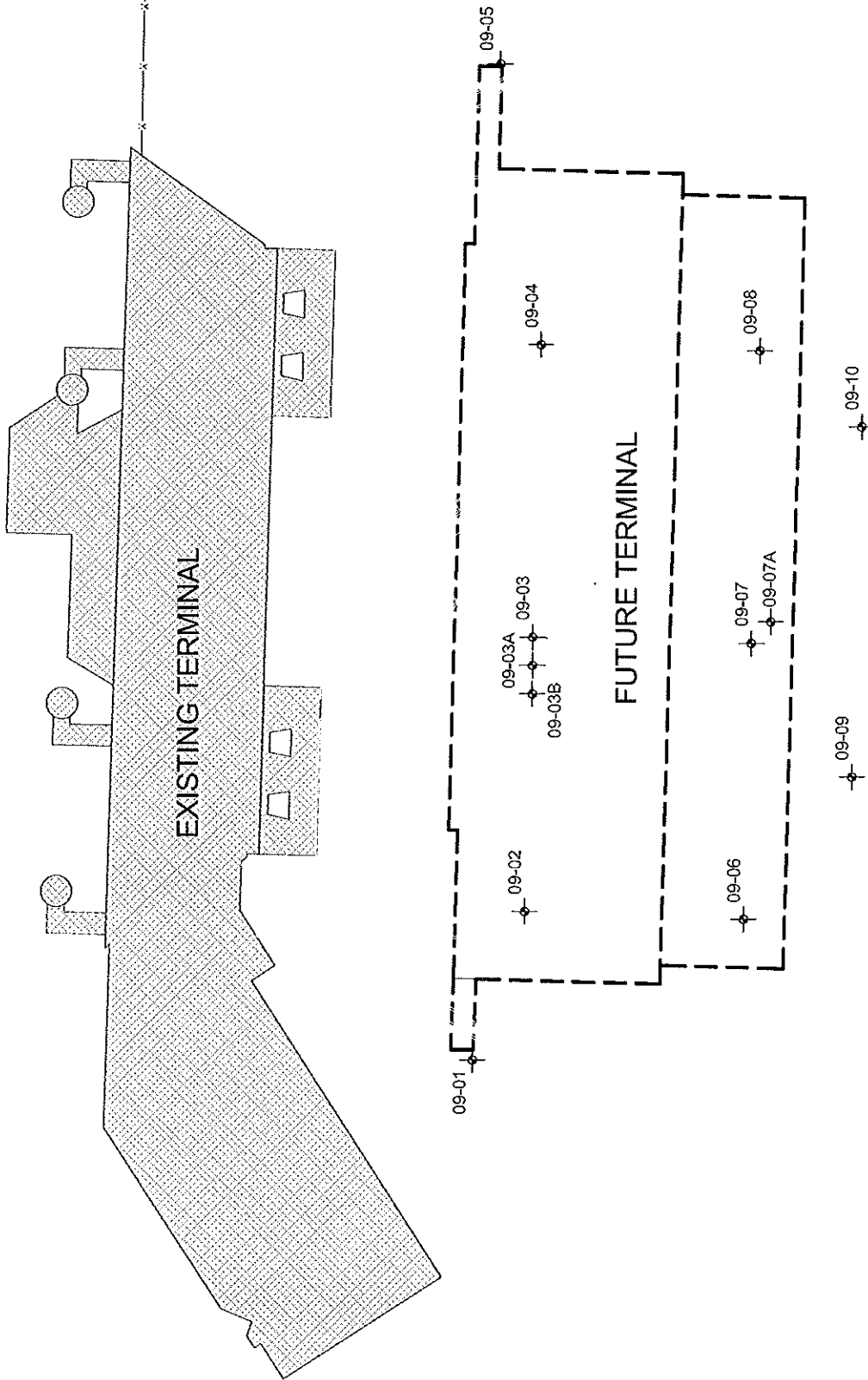
Reference: Sketch provided by Reynolds, Smith, & Hills, Inc.

N Scale: 1" = 80'

EXISTING PARKING

EXPLANATION

- 09-01 2009 Boring Location & Number
- 09-03A Test Boring Location & Number for Pressuremeter Testing

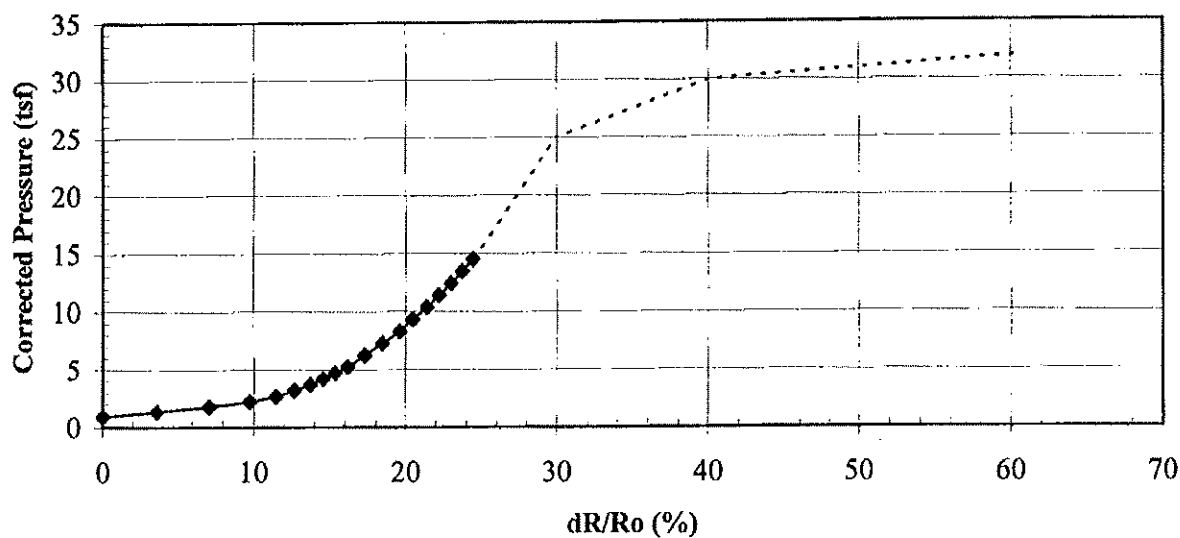


PRESSUREMETER TEST RESULTS

Airport Terminal Duluth

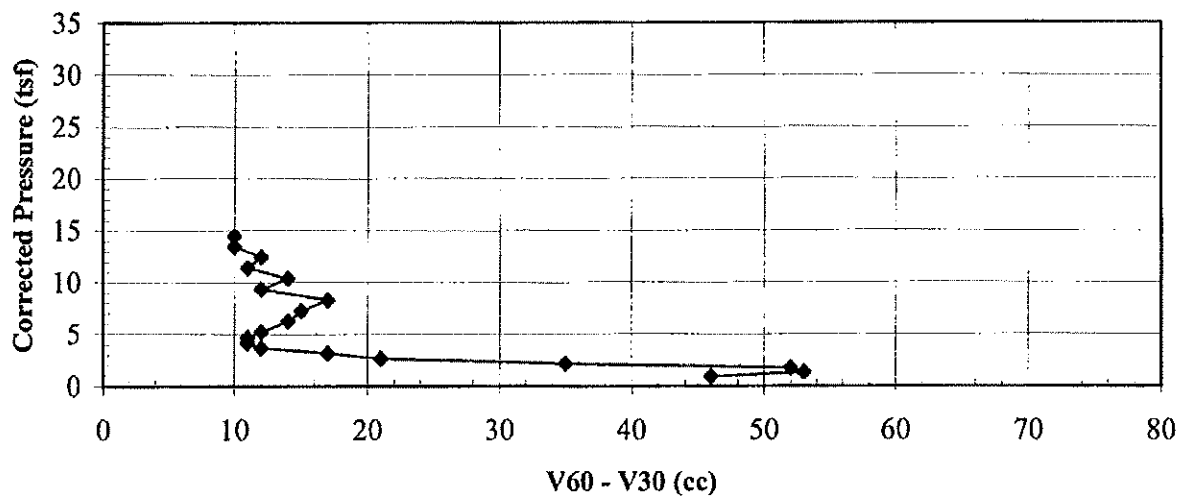
AET No. 07-04216.03

PRESSUREMETER CURVE



Boring No. : 3	$P_L(\text{tsf}) > 15.0$	$E_o(\text{tsf}) = 209$	$E_o / P_1^* = 16.1$
Depth (ft) : 11-13	$P_o(\text{tsf}) = 2.0$	Points Used = 13 to 19	$E_o / N = 3.0$
Soil : SM & Gravel	$P_L^*(\text{tsf}) > 13.0$	$P_y(\text{tsf}) > 15.0$	$P_y / P_1 = 1.00$
N_{ave} (bpf) : 70			

YIELD PRESSURE CURVE

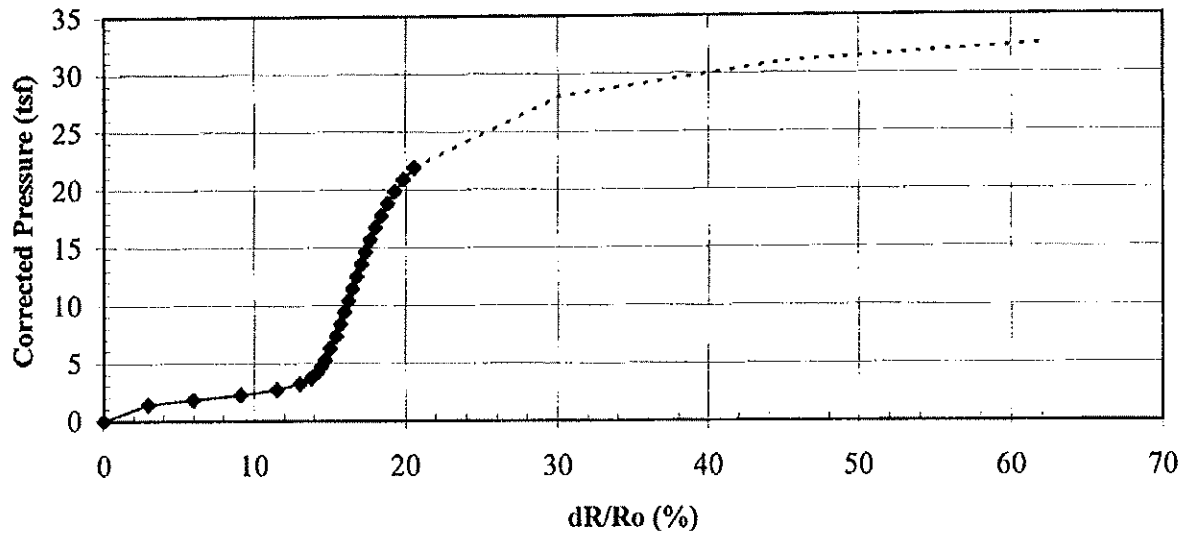


PRESSUREMETER TEST RESULTS

Airport Terminal Duluth

AET No. 07-04216.03

PRESSUREMETER CURVE



Boring No. : 7

Depth (ft) : 12.5-14.5

Soil : SM/ML

N_{ave} (bpf) : 28

P_L(tsf) > 22.0

P_o(tsf) = 2.0

P_L*(tsf) > 20.0

E_o(tsf) = 506

Points Used = 11 to 21

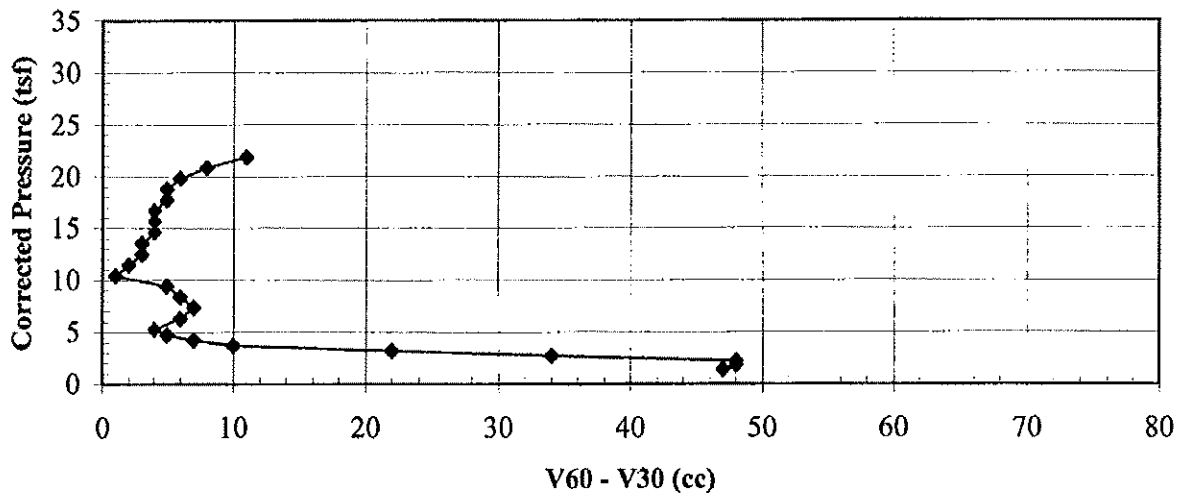
P_y(tsf) = 19.0

E_o / P_L* = 25.3

E_o / N = 18.1

P_y / P_L = 0.86

YIELD PRESSURE CURVE

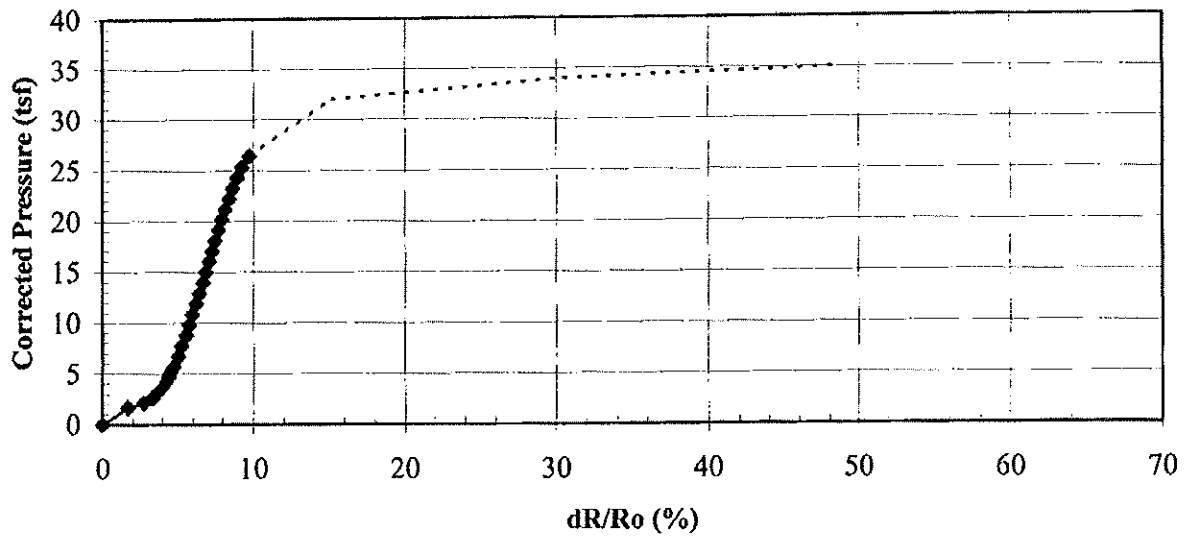


PRESSUREMETER TEST RESULTS

Airport Terminal Duluth

AET No. 07-04216.03

PRESSUREMETER CURVE



Boring No. : 7

Depth (ft) : 18.5-20.5

Soil : SM & Gravel

N_{ave} (bpf) : 79

P_L(tsf) > 27.0

P_o(tsf) = 2.5

P_L*(tsf) > 24.5

E_o(tsf) = 672

Points Used = 12 to 24

P_y(tsf) = 24.0

E_o / P₁* = 27.4

E_o / N = 8.5

P_y / P₁ = 0.89

YIELD PRESSURE CURVE

