

SECTION 01 71 23

FIELD ENGINEERING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
1. Provide and pay for field engineering services including:
 - (a) Establish and continually maintain lines and levels, laid out by instrumentation, for all proposed site improvements, including:
 - (1) rough and finish grading
 - (2) water service
 - (3) sanitary sewer
 - (4) storm sewer
 - (5) pavements
 - (6) sidewalks
 - (7) other miscellaneous site improvements.
 - (b) Establish, maintain, and perpetuate site control for layout of the building.
 2. At project completion, provide an As-Built Survey.
- B. Work under this Section is affected by an Alternate Bid. Refer to Section 01 23 00 - Description of Alternates.

1.2 SUBMITTALS

- A. Submit information in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following:
1. As-Built Survey
 - (a) Shall be conducted at the completion of the project and at least 2 weeks prior to the Contractor's Application for Substantial Completion.
 - (b) Shall be prepared in accordance with the City of Morris standards which can be obtained from the City.
 - (c) At a minimum, the As-Built Survey shall comply with the following:
 - (1) Shall be prepared using an electronic total station and the survey tolerances shall be 0.2' horizontal and 0.05' vertical.
 - (2) Shall extend 50' outside of the project construction limits
 - (3) For storm and sanitary sewers, include:
 1. Pipe and Structure Locations
 2. Pipe Sizes
 3. Direction of Flow
 4. Inverts of each pipe at each structure
 5. Rim Elevations for each structure

(4) For water utilities, include:

1. Pipe, Valve, Hydrant, Tee, and Bend Locations
2. Pipe and Valve Sizes

(5) Final Drawings shall be:

1. of identical layout to the Contract Drawings
2. on the same coordinate system as the Construction Documents
3. submitted in both .pdf and .dwg formats
4. submitted to the Owner and City
5. certified by the Land Surveyor responsible for its preparation

1.3 QUALITY ASSURANCE

- A. Entity retained by the Contractor to perform surveying or field engineering services shall be a Registered Professional of the discipline required for the specific service on the Project, licensed in the State of Minnesota.

1.4 SITE CONDITIONS

- A. Maintain benchmarks, monuments, and other reference points. If disturbed or destroyed, replace, or relocate by a registered land surveyor at the Contractor's expense.

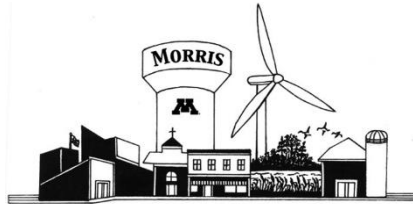
PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 01 71 23



PROJECT MANUAL

Airport Terminal Building Construction

Morris Municipal Airport (MOX)

25X.141173

FAA AIP 3-27-0069-19-2026

FAA AIG 3-27-0069-20-2026

City of Morris

Morris, MN



Real People. Real Solutions.

Bolton-Menk.com

CERTIFICATIONS PAGE

PROJECT MANUAL

FOR

AIRPORT TERMINAL BUILDING CONSTRUCTION

25X.141173

FAA AIP 3-27-0069-19-2026

FAA AIG 3-27-0069-20-2026

CITY OF MORRIS

MORRIS, MN

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 Professional Engineer under the laws of the State of Minnesota.

By:  _____ Date: May 26, 2026
William J. Diede, PE
License No. 59532

I hereby certify that the structural drawings, and specifications (03 11 00, 03 20 00, 03 30 00, 06 10 00, 06 17 36), were prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By:  _____ Date: May 26, 2026
Gideon G. Bode, PE
License No. 61810

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MORRIS MUNICIPAL AIRPORT (MOX)
25X.141173
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CITY OF MORRIS
MORRIS, MN

CONTRACT DOCUMENTS:

PROJECT MANUAL:

Introductory Information, Bidding Requirements, Contract Forms and Conditions of Contract

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DRAWINGS (UNDER SEPARATE COVER):

49 sheets numbered G0.00 through E5.00, inclusive, dated May 26, 2026, and with each sheet bearing the following general title:

Airport Terminal Building Construction
City of Morris

****END OF SECTION****

ADVERTISEMENT FOR BIDS
Airport Terminal Building Construction
FAA AIP 3-27-0069-19-2026
FAA AIG 3-27-0069-20-2026
City of Morris
Morris, MN

RECEIPT AND OPENING OF PROPOSALS: Proposals for the work described below will be received online through QuestCDN.com until 10:00 A.M. on Wednesday, June 17, 2026 at which time the bids will be opened and publicly read online via Microsoft Teams. Please use the link or call-in number/conference ID below to see and/or hear the bid opening results:

1. Microsoft Teams Meeting Link: <https://tinyurl.com/morris-terminalbldg>
2. Call: 612-428-8778, Conference ID 556 242 661#

DESCRIPTION OF WORK: The work includes the construction of approximately: Construction of new Airport Terminal Building.

ITEM	QTY	UNIT
AIRPORT TERMINAL BUILDING CONSTRUCTION	1	LS

Together with numerous related items of work, all in accordance with Plans and Specifications. This project is subject to Prevailing Wage Rates, Truck Rentals, and Veteran-Owned Small Business, Equal Employment Opportunity Provisions, Buy American Iron and Steel Provisions, and Build America Buy America. Because this project includes federal funding, participation goals are governed by the USDOT Disadvantaged Business Enterprise (DBE) program. During the current DBE certification reevaluation period, no DBE participation goal will be set. State Targeted Group Business (TGB) goals do not apply to federally funded contracts and are therefore not included.

COMPLETION OF WORK: All work under the Contract must be complete by 09/01/2027.

PLAN HOLDERS LIST, ADDENDUMS AND BID TABULATION: The plan holders list, addendums and bid tabulations will be available for download on-line at www.questcdn.com or www.bolton-menk.com.

PRE-BID CONFERENCE: A pre-bid conference will be held on Wednesday, June 10th, 2026, at 10:00 A.M. at the Morris Municipal Airport Terminal Building.

TO OBTAIN BID DOCUMENTS: Complete digital project bidding documents are available at www.questcdn.com or www.bolton-menk.com. You may view the digital plan documents for free by entering Quest project # 10159988 on the website's Project Search page. Documents may be downloaded for \$50.00. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, viewing, downloading, and working with this digital project information.

BID SUBMITTAL: A bid shall be submitted online no later than the date and time prescribed. For this project, the Owner will only be accepting online electronic bids through QuestCDN. To access the electronic bid form, download the project document and click the online bidding button at the top of the advertisement. Prospective bidders must be on the plan holders list through QuestCDN for bids to be accepted.

RESPONSIBLE CONTRACTOR: All prospective contractors must comply with the minimum criteria for a "responsible contractor" as defined in Minn. Stat. § 16C.285, subd. 3. A false statement under oath verifying compliance with any of the minimum criteria will make the contractor ineligible for the project and may result in contract termination.

BID SECURITY: A Proposal Bond in the amount of not less than 5 percent of the total amount bid, drawn in favor of City of Morris shall accompany each bid.

OWNER'S RIGHTS RESERVED: The Owner reserves the right to reject any or all bids and to waive any irregularities and informalities therein and to award the Contract to other than the lowest bidder if, in their discretion, the interest of the Owner would be best served thereby.

DATED: May 26, 2026

/S/ Zoe Johnson

City Manager

Published:

Steven County Times: June 6, 2026

QuestCDN: May 27, 2026

******END OF SECTION******

INSTRUCTIONS TO BIDDERS

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ARTICLE 1—DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the FAA General Provisions and FAA Special Provisions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. Issuing Office—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid. Bidders may rely that sets of Bidding Documents obtained in this manner are complete unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms or other sources, or for a Bidder's failure to obtain Addenda if they are not a registered plan holder.
- 2.05 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.
- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.05.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within 5 days of Owner's request, Bidder must submit the following information:
- A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
 - B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
 - C. Bidder's state or other contractor license number, if applicable.
 - D. Subcontractor and Supplier qualification information.

ARTICLE 4—OTHER REQUIRED INFORMATION REGARDING QUALIFICATIONS PRE-BID CONFERENCE

- 4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.
- 4.02 Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 5.01 *Site and Other Areas*
- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.
- 5.02 *Existing Site Conditions*
- A. Subsurface and Physical Conditions; Hazardous Environmental Conditions
 - 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
 - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
 - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
 - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
 - 1) Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the FAA General Provisions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Section 20-06 of the FAA General Provisions will apply.
- B. *Underground Facilities: : Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or adjacent to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.*

5.03 *Other Site-related Documents*

- A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:
1. No other site related documents are available.

5.04 *Site Visit and Testing by Bidders*

- A. Bidder may visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit, the Bidder must not disturb any ongoing operations at the Site.
- B. Bidder shall conduct the required Site visit during normal working hours.
- C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- D. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- E. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- F. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner

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or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.
- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing to the Issuing Office. Contact information and submittal procedures for such questions are as follows:
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Section 20 of the FAA General Provisions. Such Bid bond will be issued in the form included in the Bidding Documents or the unmodified EJCDC version of the same form.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner’s damages in the case of a damages-form bond. Such forfeiture will be Owner’s exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 120 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

- 9.01 All work under the Contract shall be completed by September 1, 2027.
- 9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

- 10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Section 30 of the FAA General Provisions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:
- A. There are no key categories of work.
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such

substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Section 30-03 of the FAA General Provisions.

ARTICLE 12—PREPARATION OF BID

- 12.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form must be completed.
 - B. Paper bids, if applicable, must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form.
 - C. A Bid price must be indicated for each section, bid item, alternate, adjustment unit price item, and unit price item listed therein.
 - D. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
- 12.02 When submitting a paper bid, if Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 When submitting a paper bid, all names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e mail addresses and telephone number for communications regarding the Bid must be shown.

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- 12.11 The Bid must contain evidence of Bidder's authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.
- 12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder's licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

- 13.01 Lump Sum
- 13.02 Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

ARTICLE 14—SUBMITTAL OF BID

- 14.01 The Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid. Paper bids, if applicable, must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.
- 14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted. Paper bids that are not accepted will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

- 15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

- 16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. A tabulation of the total amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

- 18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.
- 18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.
- 18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.
- 18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.
- 18.05 *Evaluation of Bids*
- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. For the determination of the apparent low Bidder(s) when alternate(s) are submitted, Bids will be compared on the basis of the sum of the base bid and the alternate(s) selected by the Owner for award.
 - C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.
 - D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
 - E. For the determination of the apparent low Bidder when cost-plus-fee bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

- 19.01 Section 30-05 of the FAA General Provisions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Section 30-06 of the FAA General Provisions.

ARTICLE 21—SALES AND USE TAXES

- 21.01 Sales tax is to be included in the Bid.

ARTICLE 22—CONTRACTS TO BE ASSIGNED

ARTICLE 23—22.01 NO SUPPLEMENTARY CONDITIONS IN THIS ARTICLE.

Items to Be Submitted with the Bid
for
Airport Terminal Building Construction
Morris Municipal Airport (MOX)
25X.141173
FAA AIP 3-27-0069-19-2026
FAA AIG 3-27-0069-20-2026
City of Morris
Morris, MN

BID FORMS

Airport Terminal Building Construction
Morris Municipal Airport (MOX)
25X.141173
FAA AIP 3-27-0069-19-2026
FAA AIG 3-27-0069-20-2026
City of Morris
Morris, MN

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the FAA General Provisions, and the FAA Special Provisions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: City of Morris, PO Box 438, Morris, MN 56267. Refer to the Advertisement for Bids for submittal location, format, and deadline for consideration.
- 1.02 This bid form is provided for Bidders reference. The Bid must be submitted to City of Morris electronically through QuestCDN.
- 1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Bid Form (Section 00 41 00)
 - B. Certificate of Non-Segregated Facilities (Section 00 41 10)
 - C. Bidder's List (Section 00 41 20)
 - D. Buy American Certificate (Section 00 41 30)
 - E. Fostering Small Business (Section 00 41 60)
 - F. Required Bid security (Section 00 43 13)

ARTICLE 3—BASIS OF BID

- 3.01 Lump Sum Bids – **TO BE SUBMITTED ONLINE**
- 3.02 Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s), together with any Unit Prices indicated in Paragraph 3.02:
 1. Lump Sum Price (Base Bid and Alternates)

Base Bid: Airport Terminal Building Construction per Contract Documents	\$
Alternate A: Price Increase to Base Bid to ADD Wood Paneling Between Floor and Chair Rail in Pilots Briefing Roof	\$
Alternate B: Price Increase to Base Bid to ADD Cement Board Siding and Trim for Exterior Finish in lieu of Engineered Wood Siding	\$

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- B. All specified allowances shall be included in the Base Bid price set above, and have been computed in accordance with Paragraph 13.02 of the General Conditions.

Furniture Allowance	\$ 30,000
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ARTICLE 4—TIME OF COMPLETION

- 4.01 All work under the Contract must be complete by 09/01/2027.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

- 5.01 Bid Acceptance Period

- A. This Bid will remain subject to acceptance for 120 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

- 5.02 Instructions to Bidders

- A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

- 5.03 Receipt of Addenda

- A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

- 5.04 The BIDDER, by submission of a proposal, acknowledges that award of this contract is subject to the provisions of the Davis-Bacon Act. The BIDDER accepts the requirement to pay prevailing wages for each classification and type of worker as established in the attached wage rate determination as issued by the United States Department of Labor. The BIDDER further acknowledges and accepts their requirement to incorporate the provision to pay the established prevailing wages in every subcontract agreement entered into by the Bidder under this project.

- 5.05 Compliance Reports (41 CFR Part 60-1.7): Within 30 days after award of this contract, the Contractor/Subcontractor shall file a compliance report (Standard Form 100) if s/he has not submitted a complete compliance report within 12 months preceding the date of award. This report is required if the Contractor/Subcontractor meets all of the following conditions:

- A. Contractors/Subcontractors are not exempt based on 41 CFR 60-1.5.
B. Has 50 or more employees.
C. Is a Prime Contractor or first tier Subcontractor.
D. There is a contract, subcontract, or purchase order amounting to \$50,000 or more.

- 5.06 **No DBE goals apply to this contract per 49 CFR Part 26 as amended by the 10/3/25 IFR.** ~~The BIDDER acknowledges that the OWNER has established a contract Disadvantaged Business Enterprise goal of % for this project. The BIDDER acknowledges and accepts the requirements to~~

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~~apply and document good faith efforts, as defined in Appendix A, 49 CFR Part 26, for subcontracting a portion of the prime contract to certified Disadvantaged Business Enterprises (DBE), as defined in 49 CFR Part 26 for purposes of meeting the OWNER'S established goal. The BIDDER, if complying with this requirement, proposes participation by Disadvantaged Business Enterprises as stated on the attached forms, "Utilization Statement" and "Letter of Intent."~~

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Bidder's Representations

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder's Certifications

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 6.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.
5. By signing this Bid, Bidder certifies under oath that Bidder is in compliance with each of the minimum criteria listed in Minnesota Statute § 16C.285 Subdivision 3, with the exception of clause (7) "RESPONSIBLE CONTRACTOR REQUIREMENT DEFINED", at the time of submitting this bid. Bidder acknowledges that if Bidder's certification is later found to be false, it may result in termination of a construction contract that has already been awarded. Bidder also acknowledges that Owner is not liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor falsely verified that it meets the minimum criteria.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest:

(individual's signature)

Name:

(typed or printed)

Title:

(typed or printed)

Date:

(typed or printed)

Address for giving notices:

Bidder's Contact:

Name:

(typed or printed)

Title:

(typed or printed)

Phone:

Email:

Address:

Bidder's Contractor License No.: (if applicable)

BID FORM

AIRPORT TERMINAL BUILDING CONSTRUCTION
FAA AIP 3-27-0069-19-2026
FAA AIG 3-27-0069-020-2026
MORRIS MUNICIPAL AIRPORT (MOX)
MORRIS, MINNESOTA
BMI PROJECT NO. 25X.141173

ONLY ONE BIDDING SCHEDULE from each BIDDER shall be considered for the project. When more than one BIDDING SCHEDULE from an individual BIDDER is received only the last submittal meeting the bidding requirements shall be considered and all other copies shall be left unopened.

in the CONTRACT DOCUMENTS for the following unit prices:
s tax and all applicable taxes and fees.
erals, make extension for each item, and total.

ITEM NO.	SPEC. NO.	ITEM	APPROX. QUANT.	UNIT	UNIT PRICE	AMOUNT
BASE BID - AIRPORT TERMINAL BUILDING CONSTRUCTION						
1	-	AIRPORT TERMINAL BUILDING CONSTRUCTION PER CONTRACT DOCUMENTS	1	LUMP SUM	-	\$ _____
BID ALTERNATE A - PILOTS BREIFING WOOD PANELING						
2	-	PRICE INCREASE TO BASE BID TO ADD WOOD PANELING BETWEEN FLOOR AND CHAIR RAIL IN PILOTS BRIEFING ROOM	1	LUMP SUM	-	\$ _____
BID ALTERNATE B - CEMENT BOARD SIDING						
3	-	PRICE INCREASE TO BASE BID TO ADD CEMENT BOARD SIDING AND TRIM FOR EXTERIOR FINISH IN LIEU OF ENGINEERED WOOD SIDING	1	LUMP SUM	-	\$ _____

PART 1 -- GENERAL

The Federally-assisted construction contractor certifies that he will 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 his 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 on a 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.

CONTRACTOR OR SUBCONTRACTOR:

DATE:

FORM TO BE COMPLETED AND SUBMITTED WITH THE BID

******END OF SECTION******

BIDDER'S LIST COLLECTION FORM
The following form is to be completed at the time of bid submittal.

AIP Project:	FAA AIP 3-27-0069-19-2026 FAA AIG 3-27-0069-20-2026	Airport:	Morris Municipal Airport	Location:	Morris, MN
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Note: § 26.11(c) requires Airport Sponsors to collect bidders list information from all bidders at the time of bid submittal, and to enter it into USDOT's designated system. **The data must be collected for all firms who bid as prime contractors or subcontractors (successfully or not).** The form below is NOT mandatory. If you use an electronic system to collect this information, you may instead provide a screenshot or other example showing how the system collects all the required data.

Prime Contractors and/or Subcontractors Bidding on the Project

Firm Name	Firm Address/ Phone #	NAICS Code(s) of Scope(s) Bid	Age of Firm	Annual Gross Receipts
			☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than \$1 million ☐ \$1-3 million ☐ \$3-6 million ☐ \$6-10 million ☐ Over \$10 million
			☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than \$1 million ☐ \$1-3 million ☐ \$3-6 million ☐ \$6-10 million ☐ Over \$10 million
			☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than \$1 million ☐ \$1-3 million ☐ \$3-6 million ☐ \$6-10 million ☐ Over \$10 million
			☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than \$1 million ☐ \$1-3 million ☐ \$3-6 million ☐ \$6-10 million ☐ Over \$10 million
			☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than \$1 million ☐ \$1-3 million ☐ \$3-6 million ☐ \$6-10 million ☐ Over \$10 million

**CERTIFICATION OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE -
EQUIPMENT/BUILDING PROJECTS (A4.33)
Buy American Certification**

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101, and other Made in America Laws, U.S. statutes, guidance, and FAA policies by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

- ☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- a) Only installing steel and manufactured products produced in the United States;
 - b) Only installing construction materials defined as: an article, material, or supply —other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
 - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- a) To provide to the Airport Sponsor or FAA evidence that documents the source and origin of the steel and manufactured product.
 - b) To faithfully comply with providing U.S. domestic product.
 - c) To furnish U.S. domestic product for any waiver request that the FAA rejects.
 - d) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- ☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
- a) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
 - b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
 - c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.

- d) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver — The cost of the item components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “item”. The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all product components and subcomponents that are not comprised of 100 percent U.S. domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108 (products of unknown origin must be considered as non- domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
- d) Percentage of non-domestic component and subcomponent cost as compared to total “item” component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials, would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bidders and/or offerors;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date

Signature

Company Name

Title

******END OF SECTION******

DOCUMENT 00 41 60 FOSTERING SMALL BUSINESS PARTICIPATION

TITLE 49 CFR 26.39

(This page shall be submitted for each Small Business firm)

In accordance with Section 26.39, detailed information shall be completed by the Prime Contractor for work items. The firms listed may or may not be certified DBE's.

Bidder/Offer: Name: _____
Address: _____
City: _____ State: _____ Zip: _____

Small Business Firm: Small Business Firm _____
Address: _____
City: _____ State: _____ Zip: _____

Contact Person: Name: _____ Phone: _____

CERTIFICATION: Is the firm a Small Business as defined by Section 26.65

☐ Yes ☐ No

*Proof of eligibility may be requested

CERTIFIED DBE: Is the firm a Certified DBE?

☐ Yes ☐ No

Work item(s) to be performed by Small Business Firm	Description of Work Item	Cost	Percentage of Total Contract

The bidder/offeror is committed to utilizing the above-named Small Business firm for the work described above in an effort to foster Small Business participation. The estimated participation is as follows:

Small Business contract amount: \$ _____ Percent of total contract: _____ %

AFFIRMATION:

The above-named Small Business firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____
(Signature) (Title)

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

The bidder/offeror understands that if it is awarded the contract/agreement resulting from this procurement, it must enter into a subcontract with the DBE firm identified above that is representative of the type and amount of work listed. Bidder/offeror understands that upon submitting this form with its bid/offer, it may not substitute or terminate the DBE listed above without following the procedures of 49 CFR Part 26, §26.53.

By: _____
(Signature) (Title)

BID SECURITY FORM

Bidder Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Morris Address <i>(principal place of business)</i> : PO Box 438 Morris, MN 56267	Bid Project <i>(name and location)</i> : Airport Terminal Building Construction - Morris, MN <u>Bid Due Date:</u>
Bond Penal Sum: Date of Bond:	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
_____ <i>(Full formal name of Bidder)</i>	_____ <i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title:	Title:
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond will be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation will be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by Owner, or
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

BIDDERS QUALIFICATIONS

GENERAL INFORMATION

The low bidder is requested to furnish the following information. Additional sheets shall be attached as required.

Contractor's name and address: _____

Number of years as a Contractor in construction work of this type: _____

Names and titles of all officers of Contractor's firm: _____

SUBMIT a list of three construction contracts completed by the Contractor during the last five years involving work of similar type and comparable value. The list shall include the following information as a minimum:

- Name, address, and telephone number of owner.
- Name of project.
- Location of project.
- Brief description of the work involved.
- Contract amount.
- Date of completion of contract.
- Name, address and telephone number of architect or engineer.
- Name of owner's project engineer.

EQUIPMENT/MATERIAL SOURCE INFORMATION

The low bidder is requested to list the name of the manufacturer or supplier and catalog numbers of the equipment or material proposed to be furnished under the bid. Awarding of a contract under this bid will not imply approval by the Owner of the manufacturers or suppliers listed by the low bidder.

- See Technical Specifications and Specifications Sheets in Plans

****END OF SECTION****

Items to Be Executed After Bid Opening
for

Airport Terminal Building Construction

Morris Municipal Airport (MOX)

25X.141173

FAA AIP 3-27-0069-19-2026

FAA AIG 3-27-0069-20-2026

City of Morris

Morris, MN

NOTICE OF AWARD

Date of Issuance:

Owner: City of Morris Owner's Project No.: FAA AIP 3-27-0069-19-2026
Engineer: Bolton & Menk, Inc. Engineer's Project No.: 25X.141173
Project: Airport Terminal Building Construction
Contract Name: Airport Terminal Building Construction
Bidder:
Bidder's Address:

You are notified that Owner has accepted your Bid dated _____ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for: Airport Terminal Building Construction

The Contract Price of the awarded Contract is \$_____. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

1 unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner 1 counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in Section 70 of the FAA General Provisions.
3. Deliver to Owner executed Section 00 51 11 "RESPONSIBLE CONTRACTOR SUBCONTRACTORS LIST". Delivery is a condition precedent to execution of this contract and failure to submit this form shall be cause for the Owner to cancel Award of Contract and declare your Bid security forfeited.
4. Other conditions precedent: *Award is contingent upon Owner receiving FAA/MnDOT funding for this project.*

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the Section 30 of the General Provisions.

Owner: City of Morris

By (signature): _____

Name (printed): Zoe Johnson

Title: City Manager

Copy: Engineer

RESPONSIBLE CONTRACTOR SUBCONTRACTORS LIST**FIRST-TIER SUBCONTRACTORS LIST****PROJECT NUMBER: 25X.141173**

The Contractor must submit a signed copy of this form prior to contract execution.

If subcontractors are added to the project after contract execution, Contractor shall submit an updated signed certification before any work is done by that subcontractor.

FIRST TIER SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

*Attach additional sheets as needed for submission of all first-tier subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1	
By signing this document I certify that I am an owner or officer of the company, and I certify under oath that: All first-tier subcontractors listed on this form have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285 Subdivision 3.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

AGREEMENT FORMS

This Agreement is by and between City of Morris ("Owner") and _____ ("Contractor").

Terms used in this Agreement have the meanings stated in the FAA General Provisions and the FAA Special Provisions .

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

- Project 25X.141173 - Airport Terminal Building Construction

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows:

- Construction of a new Airport Terminal Building.

ARTICLE 3—ENGINEER

3.01 The Owner has retained Bolton & Menk, Inc. ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by Bolton & Menk, Inc.

ARTICLE 4—CONTRACT TIMES

4.01 Time Is of The Essence

- A. All work under the Contract must be complete by 09/01/2027.

4.02 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner \$1,000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$600.00 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain completion are not additive and will not be imposed concurrently.

- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from

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recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).
- B. The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Section 40 of the FAA General Provisions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.
- C. For all awarded Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.
- D. The Work awarded shall include:
 - 1. Base Bid
 - 2. Alternate A
 - 3. Alternate B

ARTICLE 6—PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Applications for Payment shall be submitted and processed in accordance with Section 90 of the FAA General Provisions or as modified by the Supplemental Conditions.

6.02 Progress Payments; Retainage

- A. Owner shall make progress payments during performance of the work on the basis of Contractor's Applications for Payment dated on or about the 25th day of each month of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the FAA General Provisions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
 - a. 95% percent of the value of the Work completed (with the balance being retainage).
 - b. 95% percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Within 60 days of the date of Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 99 percent of the Work completed, less such amounts set off by Owner pursuant to Section 90 of the General Provisions, and less 250 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment and all final paperwork is completed. Final

paperwork is defined as documents required by the contract which may include but are not limited to:

1. Operations Manuals, as built drawings, and submittals required by the contract documents, and
2. Payroll documents for projects with prevailing wage requirements, and
3. IC 134, and
4. Lien Releases, if required.
 - a. Mn Department of Commerce Form 40.5.1.
<http://www.commerce.state.mn.us/UCB/40.5.1.pdf> or equal.

6.03 Progress Payment to Subcontractors

- A. For contracts within the State of Minnesota, MN Statute 471.425 Subd. 4a. shall apply. MN Statute 471.425 Subd. 4a. requires:
 1. The prime contractor shall pay any subcontractor within ten days of the prime contractor's receipt of payment for undisputed services provided by the subcontractor.
 2. The prime contractor shall 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.
 3. 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.
 4. 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."

6.04 Final Payment

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Section 90-11 of the FAA General Provisions.

6.05 Consent of Surety

- A. Owner will not make final payment or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.06 Interest

- A. All amounts not paid when due will bear interest at the rate of 1.5 percent per month.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 Contents

- A. The Contract Documents consist of all the following:
 1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. Fostering Small Business Participation

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4. Contractors Safety Plan Compliance Document (SPCD) Statement
5. FAA General Provisions
6. Special Provisions.
7. Specifications as listed in the table of contents of the Project Manual.
8. Drawings (not attached but incorporated by reference) consisting of 49 sheets with each sheet bearing the following general title: Airport Terminal Building Construction the Drawings listed on the attached sheet index.
9. State/Federal Prevailing Wage Rates contained in the Bidding Documents.
10. Addenda (numbers ____ to ____, inclusive).
11. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages ____ to ____, inclusive).
 - b. Certification of Non-Segregated Facilities
 - c. Bidders List
 - d. Buy American
 - e. Responsible Contractor
12. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor's Representations

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
 1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
 2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

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8.03 Standard General Conditions

- A. Owner stipulates that if the Owner stipulates that if the FAA General Provisions that are made a part of this Contract and if Owner is the party that has furnished said FAA General Provisions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Special Provisions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

City of Morris

(typed or printed name of organization)

(typed or printed name of organization)

By:

(individual's signature)

By:

(individual's signature)

Date:

(date signed)

Date:

(date signed)

Name:

Zoe Johnson

(typed or printed)

Name:

(typed or printed)

Title:

City Manager

(typed or printed)

Title:

(typed or printed)

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

(individual's signature)

Attest:

(individual's signature)

Title:

(typed or printed)

Title:

(typed or printed)

Address for giving notices:

PO Box 438

Morris, MN 56267

Address for giving notices:

Designated Representative:

Designated Representative

Name:

(typed or printed)

Name:

(typed or printed)

Title:

(typed or printed)

Title:

(typed or printed)

Address:

Address:

NOTICE TO PROCEED

Owner: City of Morris Owner's Project No.: FAA AIP 3-27-0069-19-
Engineer: Bolton & Menk, Inc. Engineer's Project No.: 25X.141173
Contractor: _____ Contractor's Project No.: _____
Project: Airport Terminal Building Construction
Contract Name: Airport Terminal Building Construction
Effective Date of Contract: _____

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on _____ pursuant to Section 80 of the FAA General Provisions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

The Substantial Completion and Final Completion must be achieved in accordance with the requirements of the Agreement.

Before starting any Work at the Site, Contractor must comply with the following: None

Owner: City of Morris

By *(signature)*: _____

Name *(printed)*: Zoe Johnson

Title: City Manager

Date Issued: _____

Copy: Engineer

PERFORMANCE BOND FORM

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Morris Mailing address <i>(principal place of business)</i> : PO Box 438 Morris, MN 56267	Contract Description <i>(name and location)</i> : Airport Terminal Building Construction - Morris, MN Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ See Paragraph 16	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond will arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement does not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract, and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, without further notice, the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.
12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted therefrom and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
14. Definitions

- 14.1. Balance of the Contract Price—The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- 14.2. Construction Contract—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- 14.3. Contractor Default—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- 14.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 14.5. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.
- 15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
- 16. Modifications to this Bond are as follows: None

PAYMENT BOND FORM

Contractor Name: Address <i>(principal place of business)</i> :	Surety Name: Address <i>(principal place of business)</i> :
Owner Name: City of Morris Mailing address <i>(principal place of business)</i> : PO Box 438 Morris, MN 56267	Contract Description <i>(name and location)</i> : Airport Terminal Building Construction - Morris, MN Contract Price: Effective Date of Contract:
Bond Bond Amount: Date of Bond: <i>(Date of Bond cannot be earlier than Effective Date of Contract)</i> Modifications to this Bond form: ☐ None ☐ See Paragraph 18	
Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____	By: _____
<i>(Signature)</i>	<i>(Signature)(Attach Power of Attorney)</i>
Name: _____	Name: _____
<i>(Printed or typed)</i>	<i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____	Attest: _____
<i>(Signature)</i>	<i>(Signature)</i>
Name: _____	Name: _____
<i>(Printed or typed)</i>	<i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i>	

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond will arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract will be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit will be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. Definitions
 - 16.1. Claim—A written statement by the Claimant including at a minimum:
 - 16.1.1. The name of the Claimant;
 - 16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;
 - 16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 - 16.1.4. A brief description of the labor, materials, or equipment furnished;

- 16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 - 16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 - 16.1.7. The total amount of previous payments received by the Claimant; and
 - 16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
- 16.2. Claimant—An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
- 16.3. Construction Contract—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
- 16.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- 16.5. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.
18. Modifications to this Bond are as follows: **None**

(To be executed after bid is awarded and prior to Notice to Proceed)

PAGE 00 61 90-1

CONSTRUCTION SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

PART 1 -- GENERAL

The purpose of the Construction Safety Plan Compliance Document (SPCD) is to:

- Detail how the Contractor shall comply with the Construction Safety Phasing Plan (CSPP) Narrative in the Plans.
- Identify those details the airport operator determines cannot be addressed before contract award.

PART 2 -- CONTRACTOR'S RESPONSIBILITIES

The Contractor is responsible for complying with the CSPP and SPCD. The Contractor shall:

Submit a Safety Plan Compliance Document (SPCD) to the airport operator. The SPCD must include a certification statement by the Contractor that indicates the operational safety requirements of the CSPP are understood and it asserts that the Contractor shall not deviate from the approved CSPP and SPCD unless written approval of the revision is granted by the airport operator.

Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and Contractor employees.

Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact that will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.

Identify in the SPCD the Contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site whenever active construction is taking place.

Conduct inspections sufficiently frequently to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate and as specified in the CSPP and SPCD.

Ensure that no Contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.

Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of Contractor equipment such as tall equipment (cranes, concrete pumps, other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator.

The SPCD shall include assigned copy of Form 00619 – Contractors Safety Plan Compliance Document Statement. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. The SPCD should not duplicate information in the CSPP. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should include the following:

(1) Coordination. Discuss details of proposed safety meetings with the airport operator and with Contractor employees and subcontractors.

(2) Phasing. Discuss proposed construction schedule elements, including:

- (a) Duration of each phase.
- (b) Daily start and finish of construction, including "night only" construction.
- (c) Duration of construction activities during:

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- (i) Normal runway operations.
- (ii) Closed runway operations.
- (iii) Modified runway "Aircraft Reference Code" usage.

(3) Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.

(4) Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.

(5) Contractor access. Provide the following:

- (a) Details on how the Contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
- (b) Listing of individuals requiring driver training (for certificated airports and as requested).
- (c) Radio communications.
 - (i) Types of radios and backup capabilities.
 - (ii) Who will be monitoring radios.
 - (iii) Whom to contact if the ATCT cannot reach the Contractor's designated person by radio.
- (d) Details on how the Contractor will escort material delivery vehicles.

(6) Wildlife management. Discuss the following:

- (a) Methods and procedures to prevent wildlife attraction.
- (b) Wildlife reporting procedures.

(7) Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.

(8) Hazardous material (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.

(9) Notification of construction activities. Provide the following:

- (a) Contractor points of contact.
- (b) Contractor emergency contact.
- (c) Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
- (d) Batch plant details, including 7460-1 submittal.

(10) Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.

(11) Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.

(12) Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.

(13) Special conditions. Discuss proposed actions for each special condition identified in the CSPP.

(14) Runway and taxiway visual aids including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:

- (a) Equipment and methods for covering signage and airfield lights.
- (b) Equipment and methods for temporary closure markings (paint, fabric, other).
- (c) Types of temporary Visual Guidance Slope Indicators (VGSI).

(15) Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.

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(16) Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.

(17) Protection of runway and taxiway safety areas including object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

(a) Equipment and methods for maintaining Taxiway Safety Area standards.

(b) Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

(18) Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

******END OF SECTION******

SECTION 02 01 10

EXISTING UTILITIES

PART 1 - GENERAL

1.1 NOTIFICATION

- A. Notify public utility companies and municipalities as to which of their properties (such as pole lines, conduits, fiber optic lines, gas pipes, TV lines, cable lines, telephone lines, and sewers) must be removed or relocated to complete the work. This notice shall note the locations to where their properties could be relocated. However, no warranty is made or implied that the utility owners will remove or relocate their properties prior to commencement of construction operations or in sufficient time or manner to prevent interference with the Contractor's operations.
- B. Give notice to the owners of all known utilities at least 48 hours before starting any operations affecting those properties. If during the course of his operations, the Contractor discovers utility property whose existence was not known, he shall immediately notify the owner thereof and the Engineer.
- C. Construction operations adjacent to utility property shall not be commenced until arrangements satisfactory to the utility owner have been made for the protection of said property and continuation of service. Should any of the Contractor's equipment come in contact with or damage utility property in any way, even though there may be no apparent evidence of breakage or harm, promptly notify the proper authorities and cooperate with them in determining damage and restoring interrupted services as may be needed. Where contact is made with a utility, operations shall be suspended immediately, and the area vacated, until it has been determined by the utility owner that it is safe to resume operations.

1.2 COMPENSATION

- A. It is understood and agreed that the Bidder has considered in the bid the relative locations of existing utilities, as shown on the Drawings, and that no additional compensation will be allowed for any delays, inconveniences or damages sustained due to interference which may result from those utilities or the operations of moving them.

1.3 PRIVATE UTILITIES

- A. Hire the services of a utility locator company to locate all privately owned utilities that may be disturbed by construction operations. Obtain any record information from the Owner related to existing utilities to aid in the location of all existing utilities.

1.4 CARE AND RESPONSIBILITY

- A. Employ special equipment or construction methods (including hand labor, if necessary) to accomplish the work as planned adjacent to utility properties without damage thereto. At no time shall the Contractor interfere with any persons engaged in protecting or moving utility property or in the operation of the utility.
- B. Assume full responsibility for reimbursing the utility owners for any damages caused to utility properties whose existence and approximate locations were made known to him before the damage was done. Nothing in this Section shall make the Contractor liable for damage to utility property located below the ground surface, in the absence of negligence, if the owner of the utility, after reasonable notice from the Contractor, fails to advise the Contractor of its location and approximate depth below the ground surface.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 02 01 10

SECTION 02 41 13

SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Provide removal of miscellaneous concrete and asphalt pavements, sanitary sewer piping and structures, watermain and related piping and materials, flag poles and footings, stumps and roots, vegetation, and other miscellaneous existing site features which are in the path of proposed improvements.
 - 2. Removal of the septic system.
- B. Employ a utility locating company to locate all privately owned utilities.
- C. Work not included in this Section:
- D. Work under this Section is affected by an Alternate Bid. Refer to Section 01 23 00 - Description of Alternates.

1.2 SITE CONDITIONS

- A. Protection of Persons: Install barricades and post with warning lights.
- B. Bench Marks and Monuments: Maintain bench marks and monuments.
- C. Protection of Existing Property to Remain: Protect existing trees and vegetation, equipment, pavements, curbing, facilities, utilities, and structures which are in area where work will be performed and which are to remain. Repair or replace existing property which is to remain that is damaged by the work, to Owner's satisfaction, at no additional cost to the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 SITE REMOVALS

- A. Site features that are to be removed or relocated are generally indicated on the Drawings. Remove and dispose of, off-site, all features and materials except for that which is permitted to remain upon determination being made by the Engineer, that their existence does not interfere with, endanger, or detract from the new construction in any way.
- B. Visit the site prior to bidding; be familiar with actual conditions in the field. Extra compensation will not be allowed for conditions which could have been determined or anticipated by examination of the site, the Contract Documents, and the information available pertaining to existing soils, utilities, and other site characteristics.
- C. All removal operations that may endanger new construction shall be completed prior to construction of affected work.
- D. Comply with all instructions and ordinances of the State of Minnesota, and all counties and municipalities regarding disposal operations, signs, traffic intersections, danger signals, barricades, fire protection, and all safety laws, ordinances, and rulings.

- E. All debris resulting from the removal and demolition operations shall be disposed of, off-site, subject to any specific regulations imposed by laws, ordinances, orders, or decrees.
- F. Removal of Existing Pavements and Curbing:
 - 1. Where a portion of an existing pavement, walk, or similar structure is to be retained for use, that portion shall not be damaged during removal operations.
 - 2. In removing asphalt or other flexible pavements, where the cut will be exposed in the finished work, saw the pavement along the removal lines with a concrete saw to a depth of not less than 1/3 the thickness of the asphalt before breaking off the asphalt. In such cases, the use of wedges, driven into the saw cut to break off the portion to be removed, will not be permitted. Cut the pavement to true lines and vertical faces.
 - 3. In removing concrete or other rigid pavements, curbs, and similar structures, remove to the nearest joint. Saw to a depth of not less than 1/3 the thickness of the concrete before breaking off the concrete. In such cases, the use of wedges, driven into the saw cut to break off the portion to be removed, will not be permitted. Cut the concrete to true lines and vertical faces.
 - 4. All demolished materials shall be removed from site unless noted otherwise.
 - 5. Where removal of pavement will result in a finished edge or will be abut new pavement, sawcut the existing pavement edge immediately prior to paving, or at a time when damage to the sawcut edge will be minimized.
 - 6. Pavement removals shall include underlying aggregate base and related materials.
- G. Removal of Existing Underground Sanitary Sewer, and Watermain and Related Piping and Materials:
 - 1. Remove and dispose of, off-site, all underground utility structures and associated piping. Existing utility structures and piping, designated for removal, shall be removed entirely and shall not be reused. Where structures remain but existing piping is removed, remaining holes in the structures shall be filled with brick and mortar to seal the opening shut.
- H. Removal of flagpoles and similar:
 - 1. Removal shall include complete removal of system materials and components, including posts, footings, and other features. Unless noted otherwise, materials scheduled for removal shall not be reused.

3.2 WELL AND SEPTIC SYSTEM REMOVAL

- A. Septic System removals:
 - 1. Septic system components (piping, tanks, aggregates, soils, etc.) shall be completely removed and disposed of off-site an approved landfill. Work shall comply with MPCA and Stevens County regulations.
 - 2. Removal of abandoned septic systems:
 - (a) Precautions shall be taken to prevent human contact with the contaminated materials. These include the distribution media, the surrounding soil or sand materials within a three foot distance of the system bottom, distribution pipes, the sewage tanks and any contaminated soil around leaky sewage tanks. Contaminated material also includes any soil that received sewage from a surfacing effluent.
 - (b) Contaminated distribution piping, manifold, geotextile fabric, and other materials must be dried and disposed of in a mixed municipal solid waste landfill; they cannot be disposed of in a demolition landfill.

- (c) Contaminated soil material may be stockpiled prior to final disposal to allow time for pathogen die-off. The stockpiling site must meet all the separation distances for an SSTS, including well and property line setbacks and a three-foot vertical separation distance to periodically saturated soil or bedrock. Additionally, the stockpiled material must be covered with a minimum of six inches of uncontaminated soil and be protected from erosion. The local unit of government should be contacted for any additional or stricter ordinance requirements.
- (d) After the soil material has been stockpiled for a minimum of one year, it may be land applied in any location meeting the setback requirements of Minn. R. 4725.4450, covered with at least six inches of uncontaminated soil, and be protected from erosion. It may also be used to fill in the abandoned tank cavities.

3.3 PROTECTION OF TREES AND PLANT LIFE

- A. Protection of plant life to remain within the construction limits and adjacent thereto shall include the following:
 - 1. Orange snow fence or orange silt fence shall be placed at drip line of trees to protect against root compaction.
 - 2. No equipment shall be allowed to move under drip line areas, nor shall any materials be stored within a drip line.
 - 3. No toxic materials shall be dumped near trees.

END OF SECTION 02 41 13

FAA General Provisions
Airport Terminal Building Construction
Morris Municipal Airport (MOX)
25X.141173
FAA AIP 3-27-0069-19-2026
FAA AIG 3-27-0069-20-2026
City of Morris
Morris, MN

Section 10 Definition of Terms

When 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 defined as follows:

Paragraph Number	Term	Definition
10-01	AASHTO	The American Association of State Highway and Transportation Officials.
10-02	Access Road	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
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	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; airport buildings and facilities located in any of these areas, and a heliport.
10-05	Airport Improvement Program (AIP)	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	Air Operations Area (AOA)	The term air operations area (AOA) 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.
10-07	Apron	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	ASTM International (ASTM)	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	Award	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	Bidder	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	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.
10-12	Calendar Day	Every day shown on the calendar.
10-13	Certificate of Analysis (COA)	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.

Paragraph Number	Term	Definition
10-14	Certificate of Compliance (COC)	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	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 work within the scope of the contract and necessary to complete the project.
10-16	Contract	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	Contract Item (Pay Item)	A specific unit of work for which a price is provided in the contract.
10-18	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.
10-19	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.
10-20	Contractors Quality Control (QC) Facilities	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	Contractor Quality Control Program (CQCP)	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	Control Strip	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	Construction Safety and Phasing Plan (CSPP)	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	Drainage System	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
Paragraph Number	Term	Definition

10-25	Engineer	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	Equipment	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	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 Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	FAA	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	Federal Specifications	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	Force Account	a. Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. b. Owner Force Account - Work performed for the project by the Owner's employees.
10-31	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 and/or Resident Project Representative (RPR) 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 and/or RPR, 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.
10-32	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.
10-33	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% of the total amount of the award contract. All other items shall be considered minor contract items.
Paragraph Number	Term	Definition
10-34	Materials	Any substance specified for use in the construction of the contract work.

10-35	Modification of Standards (MOS)	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	Notice to Proceed (NTP)	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.
10-37	Owner	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is <u>City of Morris, MN</u> .
10-38	Passenger Facility Charge (PFC)	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	Pavement Structure	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	Payment bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	Performance bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	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. Plans may also be referred to as 'contract drawings.'
10-43	Project	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	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.
10-45	Proposal guaranty	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	Quality Assurance (QA)	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	Quality Control (QC)	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.

Paragraph Number	Term	Definition
10-48	Quality Assurance (QA) Inspector	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	Quality Assurance (QA) Laboratory	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	Resident Project Representative (RPR)	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	Runway	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	Runway Safety Area (RSA)	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	Safety Plan Compliance Document (SPCD)	Details how the Contractor will comply with the CSPP.
10-54	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.
10-55	Sponsor	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	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; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	Subgrade	The soil that forms the pavement foundation.
10-58	Superintendent	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.

Paragraph Number	Term	Definition
10-59	Supplemental Agreement	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%; (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	Surety	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	Taxilane	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	Taxiway	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, aircraft parking areas, and terminal areas.
10-63	Taxiway/Taxilane Safety Area (TSA)	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.
10-64	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.
10-65	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 six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	Owner Defined terms	None for this Project.

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). *See Section 00 11 13.*

20-02 Qualification of bidders. *See Instructions to Bidders, Article 3.*

20-03 Contents of proposal forms. The Owner's *bidding documents* ~~proposal forms~~ state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization is limited to 10 percent of the total project cost.

A pre-bid conference will discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following 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. Documented record of Contractor default under previous contracts with the Owner.
- d. Documented record of unsatisfactory work on previous contracts with the Owner.

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 provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, 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. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and 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 to the conditions to be encountered in performing the work and 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 the bidder may make or obtain from his or 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. *See Instructions to Bidders, Article 12*

20-08 Responsive and responsible bidder. *See Instructions to Bidders, Article 3.*

20-09 Irregular proposals. Proposals shall be considered irregular for the following 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.
- e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.
- f. If the applicable Disadvantaged Business Enterprise information is incomplete.

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.

20-10 Bid guarantee. *See Instructions to Bidders, Article 8.*

20-11 Delivery of proposal. *See Instructions to Bidders, Article 14*

20-12 Withdrawal or revision of proposals. *See Instructions to Bidders, Article 15.*

20-13 Public opening of proposals. *See Instructions to Bidders, Article 16.*

20-14 Disqualification of bidders. *See Instructions to Bidders, Article 18 and below:*

A bidder shall be considered disqualified for any of the following 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 paragraph 20-04, *Issuance of Proposal Forms*, of this section.

20-15 Discrepancies and Omissions. *See Instructions to Bidders, Article 6 and below:* A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than seven (7) calendar days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. *See Instructions to Bidders, Article 18 and below*

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 bid 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 Section 20, paragraph 20-09, *Irregular Proposals*.
- b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

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 **120** calendar days of the date specified for publicly opening proposals, unless otherwise specified herein

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

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 paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. *See Instructions to Bidders, Article 17.*

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. *See Instructions to Bidders, Article 20.*

30-07 Approval of contract. *See Instructions to Bidders, Article 20.*

30-08 Failure to execute contract. *See Instructions to Bidders, Article 8.*

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 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 the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. 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.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. 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 non-performed, 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 Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for 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 RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. 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 defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

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. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. 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 Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all 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 in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of 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 the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (<http://mutcd.fhwa.dot.gov/>), unless otherwise specified. 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.

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 Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, 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 used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used 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 embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR 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 RPR; or

c. Use such material for the Contractor's 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., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR 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 their 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 use of such material used in the work or removed from the site.

Should the RPR 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 their own 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.

40-08 Final cleanup. 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. The Contractor 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 the property Owner.

END OF SECTION 40

Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to 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 RPR 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 their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the 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. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR 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 RPR's written orders.

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 RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR 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. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. 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 advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

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, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. *See Section 00 80 00 Special Provisions.*

50-05 Cooperation of Contractor. The Contractor shall be supplied an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard 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 shall cooperate with the RPR and their 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 their 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 RPR or their authorized representative.

50-06 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 the work 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 their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): Electronic. This shall be applicable to all survey(s) throughout these specifications.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their 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 RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR 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 RPR 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.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

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.

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 RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

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 Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, 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 with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against 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, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

Various measures such as videotape or photographs may be required to document existing conditions prior to start of construction. Construction traffic should be kept off airport pavements to the extent possible.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. 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 paragraph 50-12, *Maintenance during Construction*, the RPR 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 RPR'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 recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, 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.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR 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 RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. 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 RPR will make the final acceptance and notify the Contractor in writing of 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 for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR 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 RPR 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 10 calendar days, submit a written claim to the RPR 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.

END OF SECTION 50

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in 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 documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. 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 meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program and Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR 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 RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR 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 RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC 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. The COA is the manufacturer's COC and includes all applicable test results.

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 RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," 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.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their 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 acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR 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 RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location 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 RPR 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/ Resident Project Representative (RPR) field office. An Engineer's field office is not required.

60-06 Storage of materials. Materials shall be stored 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 to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. 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 and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. 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 RPR 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 their 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 RPR.

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 RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

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. The Contractor 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 their officers, agents, 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 the Contractor or the Contractor's 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 execution 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, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, 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 for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

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) must be shown on the plans and is indicated as follows:

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 RPR.

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 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 RPR, 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 Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States 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's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their 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 their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05,

Maintenance of Traffic, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is located in the Construction Safety and Phasing Plan located in the project manual and a Construction Safety Plan is located in project plans.

70-09 Use of explosives. The use of explosives is not permitted on 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/RPR 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 execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has 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 non-execution thereof by the Contractor, the Contractor shall restore, at their 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 the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, 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 their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages 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 or she 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 for 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. If it is 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 must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

PHASING IS ADDRESSED IN DETAIL IN THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP), LOCATED AS AN APPENDIX ITEM IN THIS SPECIFICATION.

THE MOST CURRENT VERSION OF A.C. 150/5370-2, *OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION*, IS AN APPENDIX ITEM IN THIS SPECIFICATION.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, 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 their expense.

The Contractor shall make their 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.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, 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 their own 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, seeding, and sodding furnished under the 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 paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, 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 their 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/or in the contract documents.

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 the 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 their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their 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 RPR.

The Contractor's failure to give the two days' notice 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 hand excavation methods within 3 feet (1 m) 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, the Contractor shall immediately notify the proper authority and the RPR 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 RPR 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 their operations whether 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 their own surety.

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 by this contract, there shall be no liability upon the Engineer, RPR, their 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 their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their 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. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, 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 their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume 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 change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work*, and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements. See Section 00 80 00 *Special Provisions – B1*.

END OF SECTION 70

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner 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 who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their 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.

The Contractor shall provide copies of all subcontracts to the RPR fourteen (14) days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within ten (10) days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. 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 RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

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.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor

shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, 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:

Closed areas and limitations in any given area are addressed in detail in the Construction Safety And Phasing Plan (CSPP), located as an appendix in this specification.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks 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 CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner and coordinated with the FAA. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

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 or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

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 not cause injury to previously completed work, adjacent property, or existing airport facilities due to 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 otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR 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 RPR 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 RPR 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 paragraph.

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 the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time 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 written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR 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 or for any other delay provided for in the contract, plans, or specifications.

If it becomes 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. The Contractor 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 time for completion (stated as number of calendar days,) shall be stated in the proposal (*Bid Forms*) and contract (*Agreement*) and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on specific completion date. When the contract time is a specified completion date, it shall be the date on which all contract work shall be substantially complete.

If the Contractor finds it impossible for reasons beyond their own control to complete the work within the contract time as specified, or as extended in accordance with the provisions of this paragraph, the Contractor may, at any time prior to the expiration of the contract time as extended, make a written request to the Owner for an extension of time setting forth the reasons which the Contractor believes will justify the granting of their own request. Requests for extension of time, caused by inclement weather, shall be supported with National Weather Bureau data showing the actual amount of inclement weather exceeded what 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 supporting documentation justify the work was delayed because of conditions beyond the control and without the fault of the Contractor, the Owner may extend the time for completion by a change order that adjusts the contract time or completion date. 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 paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own 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 their contract.

Liquated damages shall be as described in 00 52 00 Agreement Forms, Article 4, Section 4.03.

Schedule	Liquidated Damages Cost	Allowed Construction Time
1	\$1,000 per calendar day	09/01/2027

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 wavier on the part of the Owner of any of its rights under the contract.

The maximum construction time allowed for Schedules 1 will be the sum of the time allowed for individual schedules but not more than 09/01/2027. 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 wavier 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 their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

- 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 and/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 execution of the work, or
- e. Fails to resume work which has been discontinued within a reasonable time 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 the Contractor unsatisfied for a period of 10 days, 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 Owner consider the Contractor in default of the contract for any reason above, the Owner 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, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR 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 execution 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 RPR 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 execution 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 RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their 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 RPR 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 work in accordance with the approved CSPP and SPCD.

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 RPR, or their authorized representatives, using United States Customary Units of Measurement.

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 meters) 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 RPR.

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.

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.

When requested by the Contractor and approved by the RPR 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 RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds (907 kg) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. 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 RPR directs, and each truck shall bear a plainly legible identification mark.

Term	Description
Measurement by Volume	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 for the materials hauled, 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.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. 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 asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	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 inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, 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	Scales must be tested for accuracy and serviced before use. 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. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR 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 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been “overweighing” (indicating more than correct weight) they will be immediately adjusted. All materials received

	subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighting (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment. 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.
Rental Equipment	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 in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 <i>Payment for Extra Work</i>.
Pay Quantities	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 RPR. 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 execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

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 Section 40, paragraph 40-02, *Alteration of Work and Quantities*, 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 their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items*, the RPR 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 RPR 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 RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR'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 RPR'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 the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and 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 paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

- a. From the total of the amount determined to be payable on a partial payment, 5% (five percent) of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:
 - (1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.
 - (2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.
- b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.
- c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain 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 RPR 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 paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

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 RPR at or on an approved site.
- b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- c. The Contractor has furnished the RPR 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 stored or stockpiled.
- e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time 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 their 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 paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to 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 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 Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's 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 RPR 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 RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR'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 Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, 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.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes*, or under the provisions of this paragraph, 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.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturer's warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s).

k. Security for Construction Warranty.

END OF SECTION 90

Special Provisions
for
Airport Terminal Building Construction
Morris Municipal Airport (MOX)
FAA AIP 3-27-0069-19-2026
FAA AIG 3-27-0069-20-2026
City of Morris
Morris, MN

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SPECIAL PROVISIONS

SECTION A – REQUIRED FEDERAL CONTRACT PROVISIONS

A1 ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, 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 purpose 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 pending matters are closed.

A2 AFFIRMATIVE ACTION REQUIREMENT

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY

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:

Timetables

Goals for minority participation for each trade: 12%

Goals for female participation in each trade: 6.9%

These goals are applicable to all of 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 of 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 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 of the Office of Federal Contract Compliance Programs (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 of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.
4. As used in this notice and in the contract resulting from this solicitation, the “covered area” is State of Minnesota, Stevens County, and Owner is City of Morris.

A3 BREACH OF CONTRACT TERMS

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the *Contractor* or its 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.

Owner will provide *Contractor* written notice that describes the nature of the breach and corrective actions the *Contractor* must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner’s notice will identify a specific date by which the *Contractor* must correct the breach. Owner may proceed with termination of the contract if the *Contractor* fails to correct the breach by the deadline indicated in the Owner’s notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A4 BUY AMERICAN PREFERENCE

Certification of Compliance with FAA Buy American Preference Statement

FAA BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,¹ U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA’s Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport

¹ Per Executive Order 14005 “Made in America Laws” means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to “Buy America” or “Buy American,” that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all construction materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

Certification of Compliance with FAA Buy American Preference – Construction Projects

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

- ☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- a) Only installing iron, steel and manufactured products produced in the United States;
 - b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
 - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
 - d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
 - b) To faithfully comply with providing U.S. domestic products.
 - c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
 - d) Certify that all construction materials used in the project are manufactured in the U.S.
- ☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

- a) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
- b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
- c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
- d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
- e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
- d) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bids and/or offers;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;

d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date

Signature

Company Name

Title

A5 CIVIL RIGHTS - GENERAL

GENERAL CIVIL RIGHTS PROVISIONS

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

Specific Clause that is used for General Contract Agreements

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A6 CIVIL RIGHTS – TITLE VI ASSURANCE

Title VI Solicitation Notice:

City of Morris, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, or disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq.*) (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration’s Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

Compliance with Nondiscrimination Requirements:

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:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
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 will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will 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 to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A7 CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceed \$150,000.

A8 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

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.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, 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 paragraph (1) of this clause, in the sum of \$29 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 (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner 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 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 (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (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 (1) through (4) of this clause.

A9 COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A10 DAVIS-BACON REQUIREMENTS

DAVIS-BACON REQUIREMENTS

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 § 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 determination;
- (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, U.S. Department of Labor, Washington, DC 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.

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 the 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.

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 that 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 Federal Aviation Administration 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 the Federal Aviation Administration. 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 <https://www.dol.gov/agencies/whd/government-contracts/construction/payroll-certification> 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 the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, 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 section 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 the sponsoring government agency (or the applicant, Sponsor, or Owner).

(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;

(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.

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 that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that 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 program is approved.

(iii) Equal Employment Opportunity. 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.

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 shall insert in any subcontracts the clauses contained in 29 CFR §§ 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 § 5.5.

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 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 the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

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 USC § 1001.

A11 DEBARMENT AND SUSPENSION

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A12 DISADVANTAGED BUSINESS ENTERPRISE

Solicitation Language (Solicitations that include a Contract Goal)

Bid Information Submitted as a matter of responsiveness:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

- 1) The names and addresses of Disadvantaged Business Enterprise (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 listed under (1);
- 4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal
- 5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
- 6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Bid Information submitted as a matter of responsibility:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

- 1) The names and addresses of Disadvantaged Business Enterprise (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 listed under (1);
- 4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
- 5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
- 6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

The requirements of 49 CFR part 26 apply to this contract. It is the policy of City of Morris to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Contract Assurance (49 CFR § 26.13; mandatory text provided) –

The Contractor, subrecipient 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, which may include, but is not limited to:

- 1) Withholding monthly progress payments;

- 2) Assessing sanctions;
- 3) Liquidated damages; and/or
- 4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (49 CFR § 26.29) –

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than seven days from the receipt of each payment the prime contractor receives from City of Morris. The prime contractor agrees further to return retainage payments to each subcontractor within seven 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 City of Morris. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f)) –

The prime contractor must not terminate a DBE subcontractor listed in bid (or an approved substitute DBE firm) without prior written consent of City of Morris. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent from City of Morris. Unless City of Morris consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

[Name of Recipient] may provide such written consent only if City of Morris agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to City of Morris its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to City of Morris, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise [Name of Recipient] and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why City of Morris should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), City of Morris may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

A13 DISTRACTED DRIVING

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

A14 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

A15 DRUG FREE WORKPLACE REQUIREMENTS

Not Applicable.

A16 EQUAL EMPLOYMENT OPPORTUNITY (EEO)

EQUAL OPPORTUNITY CLAUSE

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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.

(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 consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments

under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such 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 in accordance with procedures 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.

(8) The Contractor will include the provisions of paragraphs (1) through (8) 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 may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS

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).

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 part 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 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.

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 areas 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.

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 nonworking 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 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 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 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 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 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.

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 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 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.

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, religion, sex, sexual orientation, gender identity, or national origin.

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 part 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).

A17 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The *Contractor* has full responsibility to monitor compliance to the referenced statute or regulation. The *Contractor* must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A18 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, 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 Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an 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 undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients 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.

A19 PROHIBITION OF SEGREGATED FACILITIES

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, 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 entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

A20 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A21 PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

- 1) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
- 2) The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

A22 RIGHT TO INVENTIONS

Not Applicable.

A23 SEISMIC SAFETY

Not Applicable.

A24 TAX DELINQUENCY AND FELONY CONVICTIONS

CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the

space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

- 1) The applicant represents that it is () is not () a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2) The applicant represents that it is () is not () a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

A25 TERMINATION OF CONTRACT

TERMINATION FOR CONVENIENCE (CONSTRUCTION)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.

5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR CAUSE (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

A26 TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 1) 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 as published by the Office of the United States Trade Representative (USTR);
- 2) 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 included on the list of countries that discriminate against U.S. firms as published by the USTR; and
- 3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

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 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become

erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

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 an Offeror or subcontractor:

- 1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
- 2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
- 3) who incorporates in the public works project any product of a foreign country on such USTR list.

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.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

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

A27 VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A28 DOMESTIC PREFERENCES FOR PROCUREMENTS

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

******END OF SECTION******

SPECIAL PROVISIONS

SECTION B – LOCAL TERMS AND CONDITIONS

B1 Contractor's Insurance Requirements

Prior to the commencement of this Agreement, the CONTRACTOR shall obtain certificates of all insurance required on a form approved by the OWNER, signed by an authorized representative of the insurance carrier. The certificates shall be submitted directly to the OWNER for review and approval with a record copy only to the ENGINEER for his files. The CONTRACTOR shall not begin any work until the OWNER has reviewed and approved the insurance certificates and has so notified the CONTRACTOR directly in writing. Any notice to proceed that is issued shall be subject to such approval by the OWNER.

The following is a listing of the coverage to be included in the liability insurance and to be clearly shown as covered on the insurance certificate. For work within railroad rights-of-way see paragraph (k) below.

- a. Comprehensive general liability insurance including premises-operations coverage, completed operations coverage, independent contractor's coverage and contractual liability coverage, covering the indemnity agreement under General Provision 70-11, with limits of not less than \$2,000,000 combined single limit, including bodily injury liability and property damage liability. Lower basic general liability limits with existence of umbrella liability will be acceptable.
- b. Workers' compensation insurance and employees' liability insurance as required by law, with requirement that employers' liability insurance shall cover all employees with limits of not less than \$1,000,000 combined single limit, including bodily injury, sickness, disease and death liability.
- c. Automobile, bodily injury and property damage liability insurance, including coverage for all owned, hired vehicles and employers' non-ownership liability coverage with limits of not less than \$2,000,000 combined single limit bodily injury and property damage liability.
- d. The additional insured coverage required by General Provision 70-11 will extend to claims arising out of the CONTRACTOR's ongoing operations for the OWNER.
- e. The policy shall be a standard form policy provided for by a carrier approved by the State of Colorado and having an "AM BEST" ratings of A- and FSC VIII or better. The policies shall not contain any exclusion that will restrict coverage on any operations performed by this CONTRACTOR or any subcontractor hereof. At the time the CONTRACTOR delivers all certificates of insurance and other proof of insurance to OWNER, the CONTRACTOR shall include evidence of the carrier's "AM BEST" rating.
- f. It is a condition of the Contract that the policy or policies to be provided by the CONTRACTOR shall waive governmental immunity as a defense in any action brought against the insured by any other party to the Contract.
- g. The policy shall provide full insurance to cover all of the CONTRACTOR's operating exposures including the picking up of materials, the operation of vehicles, the operation of collection and processing sites, explosion, remote borrow site activities, collapse, underground hazards and contractual liability as required in General Provision 70-11.
- h. Approval of the insurance by the OWNER shall not in any way relieve or decrease the liability of the CONTRACTOR hereunder, and it is expressly understood that the OWNER or the ENGINEER

does not in any way represent that the above specified insurance or limits of liability are sufficient or adequate to protect the CONTRACTOR'S interest or liabilities.

- i. Any insurance agent shall have in force for any coverage provided by this Contract Errors and Omissions Coverage with limits of not less than \$1,000,000 per occurrence and \$1,000,000 aggregate.
- j. The OWNER and ENGINEER shall be named and listed as additional insureds on the CONTRACTOR'S general liability policy. The inclusion of more than one named insured shall not operate to impair the rights of one insured against another insured, and the coverages afforded shall apply as though separate policies had been issued to each insured.
- k. Whenever a Contract requires that work be performed within the right of way of a railroad or that materials be hauled across the tracks of a private crossing, the CONTRACTOR shall provide Railroad Protective Liability Insurance in accordance with MnDOT Specification 1708. The CONTRACTOR is advised that this increases coverage limits for Bodily Injury Liability, Property Damage Liability and Physical Damage to Property to \$2,000,000 per occurrence and \$6,000,000 aggregate.
- l. Should any of the above described policies be cancelled before the expiration date thereof, the issuing company shall mail thirty (30) day written notice to the OWNER, with a copy mailed to the ENGINEER.

Owner's Liability Insurance

- a. Reference is made is paragraph j. above, which shall apply.

Property Insurance

- a. All responsibility for maintaining property insurance on any project premises or structures owned, operated or being constructed by the CONTRACTOR remains solely with the CONTRACTOR, and such responsibility shall remain with the CONTRACTOR until such time as this Contract is terminated. Such coverage shall apply to the entire project for the period of this Contract, and include completed Work, Work in progress, and materials stored on-site, off-site or in-transit. Such insurance shall include as additional named insured: the OWNER, the ENGINEER and their consultants, and each of their officers, employees and agents, and any other persons with an insurable interest designated by the OWNER.
- b. If the Work involves above ground structures, in any way, including but not limited to construction, demolition, renovation, and/or remodeling, the CONTRACTOR shall submit, before commencement of the Work, written evidence that it has obtained Builders' Risk "All-Risk" Completed Value Insurance Coverage. Such coverage shall apply to the entire project for the period of this Contract, and include completed Work, Work in progress, and materials stored on-site, off-site or in-transit. Such insurance shall include as additional named insured: the OWNER, the ENGINEER and their consultants, and each of their officers, employees and agents, and any other persons with an insurable interest designated by the OWNER.

******END OF SECTION******

B2 DISPUTE RESOLUTION

SUBSECTION 70-22 – DISPUTE RESOLUTION

Add the following Subsection 70-22 to Section 70

OWNER and CONTRACTOR agree that they shall submit any and all unsettled claims, counterclaims, disputes or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof to the following Mediation / Arbitration procedure for dispute resolution.

1. Mediation Procedure

a. Notice to Invoke Procedure

Should a dispute arise over the interpretation or application of this Agreement, which cannot be resolved by negotiations between the parties, they shall invoke this Mediation Procedure before proceeding to litigation. Either party may invoke the Procedure by giving written notice to the other. The notice shall include the designation of an executive officer with authority to engage in mediation and settle the dispute.

b. Response

Within fourteen (14) business days of a notice given as provided above, the other party shall respond, designating an executive officer with authority to engage in mediation and settle the dispute on its behalf.

c. Submission

Within five (5) business days of a response given as provided above, the parties shall select a mutually acceptable neutral third party, who shall act as mediator, and schedule the first mediation session to resolve the dispute. All mediation meetings shall be held at the offices of the Owner unless otherwise agreed.

d. No Resolution through Mediation

In the event the parties are unable to reach a resolution of the dispute through the Mediation Procedure, described herein, each party agrees to enter into Arbitration in accordance with the terms and conditions of Subsection 70-22, 2 of the Supplementary Provisions.

e. Confidentiality

To the extent permissible under Minnesota Data Practices Act and the Minnesota Open Meeting Law, by entering into this Mediation Procedure, the parties shall be taken to agree that the entire proceeding is confidential; that the parties, their representatives and the Neutral Third Party must keep confidential all statements, whether oral or written, made in this proceeding, and all other matters relating to the proceeding, including the settlement agreement, except when, and insofar as its disclosure is necessary to implement and enforce such agreement. All such matters will be inadmissible and not subject to discovery in any litigation, arbitration, or other proceeding.

The Neutral Third Party will be disqualified as a witness, consultant, or expert for any part to this proceeding, and his opinions, records or notes in this proceeding will be inadmissible in any litigation, arbitration or other proceeding.

2. Arbitration Agreement

- a. All claims, disputes and other matters in question between OWNER and CONTRACTOR arising out of or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by Subsection 90-09) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, subject to the limitations of this Article 16.02. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16.02 will be specifically enforceable under the prevailing law of any court having jurisdiction.
- b. No demand for arbitration of any claim, dispute or other matter that is required to be referred to ENGINEER initially for decision in accordance with Subsection 50-01 will be made until the earlier of (a) the date on which ENGINEER has rendered a written decision or (b) the thirty-first day after the parties have presented their evidence to ENGINEER if a written decision has not been rendered by ENGINEER before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which ENGINEER has rendered a written decision in respect thereof in accordance with Subsection 50-01; and the failure to demand arbitration within said thirty days' period will result in ENGINEER's decision being final and binding upon OWNER and CONTRACTOR. If ENGINEER renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of ENGINEER will be made later than thirty (30) days after the party making such demand has delivered written notice of intention to appeal.
- c. Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 2.b as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in event shall any such demand be made after that date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

- d. Except as provided in paragraph 2.e below, no arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including ENGINEER, ENGINEER's Consultant and the officers, directors, agents, employees or consultants of any of them) who is not a party to this contract unless:
 - 1. The inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration, and
 - 2. Such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and
 - 3. The written consent of the other person or entity sought to be included and of OWNER and CONTRACTOR has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.
- e. Notwithstanding paragraph 2.d if a claim, dispute or other matter in questions between OWNER and CONTRACTOR involves the Work of a Subcontractor, either OWNER or CONTRACTOR may join such Subcontractor as a party to the arbitration between OWNER AND CONTRACTOR hereunder. CONTRACTOR shall include in all subcontracts a specific provision whereby the Subcontractor consents to being joined in arbitration between OWNER and CONTRACTOR involving the Work of such Subcontractor. Nothing in this paragraph 2.e nor in the provision of such subcontract consenting to joinder shall create any claim, right or cause of action in favor of Subcontractor and against OWNER, ENGINEER, or ENGINEER's Consultants that does not otherwise exist.
- f. If the amount of the dispute submitted for arbitration was less than or equal to \$ 15,000, the award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal.
- g. If the amount of the dispute submitted for arbitration was greater than \$ 15,000, the award rendered by the arbitrators may be accepted by all parties and judgment may be entered upon it in any court having jurisdiction; or any party may choose to reject the proposed award of the arbitrators and elect to pursue other legal remedies that are available.
- h. OWNER and CONTRACTOR agree that they shall first submit any and all unsettled claims, counterclaims, disputes and other matters in question between them arising out of or relating to the Contract Documents or the breach thereof ("disputes"), to mediation by The American Arbitration Association under the Construction Industry Mediation Rules of the American Arbitration Association prior to either of them initiating

against the other a demand for arbitration pursuant to paragraphs 2.a through 2.f, unless delay in initiating arbitration would irrevocably prejudice one of the parties. The respective thirty and ten day time limits within which to file a demand for arbitration as provided in paragraphs 2.b and 2.c above shall be suspended with respect to a dispute submitted to mediation within those same applicable time limits and shall remain suspended until ten days after the termination of the mediation. The mediator of any dispute submitted to mediation under this Agreement shall not serve as arbitrator of such dispute unless otherwise agreed.

SPECIAL PROVISIONS

SECTION B – LOCAL TERMS AND CONDITIONS

B3 RESIDENT PROJECT REPRESENTATIVE

General

If the OWNER and ENGINEER choose to furnish a Resident Project Representative (RPR), assistants and other field staff, they shall assist the ENGINEER in observing performance of the Work of the CONTRACTOR. There is no expressed, written or implied guarantee that an RPR will be on site at all times.

Through more extensive on-site observations of the work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the Work; but, the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for 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 ENGINEER in the construction Contract Documents, and are further limited and described as follows:

RPR is ENGINEER'S agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

Duties and Responsibilities of RPR

Schedules: Review the progress schedule, prepare a schedule of Shop Drawing submittals and review the schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

Conferences and Meetings: Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project related meetings, and prepare and circulate copies of minutes thereof.

Liaison:

Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S on-site operations.

Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

Shop Drawings and Samples:

Record date of receipt of Shop Drawings and samples.

Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.

Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

Review of Work, Rejection of Defective Work, Inspections and Tests:

Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

Report to ENGINEER whenever 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 ENGINEER of work that RPR believes should be corrected or rejected or should be uncovered for examination, or requires special testing, inspection or approval.

Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.

Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.

Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.

Records:

Maintain orderly files for correspondence, reports or 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, ENGINEER'S clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

Keep a diary or log book, recording CONTRACTOR hours on the job site, weather conditions, data relative to questions of Work Directive Changes, 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.

Record names, addresses and telephone numbers of all CONTRACTOR'S, subcontractors and major suppliers of materials and equipment.

Reports:

Furnish ENGINEER periodic reports as required of progress of the work and of CONTRACTOR'S compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.

Draft proposed Change Orders and Work Directive Changes, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Directive Changes, and Field Orders.

Report immediately to ENGINEER and OWNER upon the occurrence of any accident.

Payment Requests: Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to 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.

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 CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.

Completion:

Conduct final inspection in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a final list of items to be completed or corrected.

Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

Limitations of Authority

Resident Project Representative (RPR)

Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.

Shall not exceed limitations of ENGINEER'S authority as set forth in the Contract Documents.

Shall not undertake any of the responsibilities of CONTRACTOR, subcontractor or CONTRACTOR'S superintendent.

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.

Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.

Shall not accept Shop Drawing or sample submittals from anyone other than CONTRACTOR.

Shall not authorize OWNER to occupy the Project in whole or in part.

Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

******END OF SECTION******

SPECIAL PROVISIONS

SECTION B – LOCAL TERMS AND CONDITIONS

B4 SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE

Item	Electronic Documents	Transmittal Means	Data Format	Note (1)
a.1	General communications, transmittal covers, meeting notices and responses to general information requests for which there is no specific prescribed form.	Email	Email	
a.2	Meeting agendas, meeting minutes, RFI’s and responses to RFI’s, and Contract forms.	Email w/ Attachment	PDF	(2)
a.3	Contactors Submittals (Shop Drawings, “or equal” requests, substitution requests, documentation accompanying Sample submittals and other submittals) to Owner and Engineer, and Owner’s and Engineer’s responses to Contractor’s Submittals, Shop Drawings, correspondence, and Applications for Payment.	Email w/ Attachment	PDF	
a.4	Correspondence; milestone and final version Submittals of reports, layouts, Drawings, maps, calculations and spreadsheets, Specifications, Drawings and other Submittals from Contractor to Owner or Engineer and for responses from Engineer and Owner to Contractor regarding Submittals.	Email w/ Attachment or LFE	PDF	
a.5	Layouts and drawings to be submitted to Owner for future use and modification.	Email w/ Attachment or LFE	DWG	
a.6	Correspondence, reports, and Specifications to be submitted to Owner for future word processing use and modification.	Email w/ Attachment or LFE	DOC	
a.7	Spreadsheets and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	EXC	
a.8	Database files and data to be submitted to Owner for future data processing use and modification.	Email w/ Attachment or LFE	DB	
Notes				
(1)	All exchanges and uses of transmitted data are subject to the appropriate provisions of Contract Documents.			
(2)	Transmittal of written notices is governed by Paragraph 18.01 of the General Provisions.			
Key				
Email	Standard Email formats (.htm, .rtf, or .txt). Do not use stationery formatting or other features that impair legibility of content on screen or in printed copies			
LFE	Agreed upon Large File Exchange method (FTP, CD, DVD, hard drive)			
PDF	Portable Document Format readable by Adobe® Acrobat Reader Version.			
DWG	Autodesk® AutoCAD .dwg format Version.			
DOC	Microsoft® Word .docx format Version.			
EXC	Microsoft® Excel .xls or .xml format Version.			
DB	Microsoft® Access .mdb format Version.			

*****END OF SECTION*****

SECTION 03 11 00 - CONCRETE FORMWORK

PART 1 -- GENERAL

1.1 THE REQUIREMENTS

- A. All formwork shall comply with all the recommendations of ACI 347 "Recommended Practice for Concrete Formwork" except as modified herein.
- B. The CONTRACTOR shall assume full responsibility for the design and construction of all formwork.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Commercial Standards
 - ACI 117 Specifications for Tolerances for Concrete Construction and Materials.
 - ACI 301 Specifications for Structural Concrete for Buildings.
 - ACI 347 Recommended Practice for Concrete Formwork.

1.3 QUALITY ASSURANCE

- A. The CONTRACTOR shall set and maintain concrete forms and perform finishing operations so as to ensure that the completed work conforms to the shape, line, grade, and dimensions as shown in the drawings. Formwork tolerances shall not exceed permissible deviations given in ACI 117. Use Class A formwork facing material offset. Use "very flat floor" finishing tolerance. See Section 03 30 00 for additional construction tolerances. Tolerance is the specified permissible variation from lines, grades, or dimensions shown. Surface defects and irregularities are defined as finishes and are to be distinguished from tolerances.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. For all concrete surfaces to be unexposed, form surfaces that will be in contact with concrete shall be of No. 2 common or better lumber or other material producing equivalent finish.
- B. For all concrete surfaces to be exposed, finishes shall be as specified in Section 03 30 00.
- C. Form ties shall be factory-fabricated, snap-off metal ties of design that will not allow form deflection and will not spall concrete upon removal. Wire ties will not be permitted. Ties shall be free of devices that will leave a hole larger than 1 inch or less than 1/2-inch in diameter in the concrete surface. The portion of the tie remaining in the concrete after removal of the exterior parts shall not project beyond the surface of the concrete and shall be at least 1-1/2 inches back from any surface of the concrete that will be exposed, painted, damp-proofed, waterproofed, or receive direct applications of plaster.
- D. Forms for exposed or painted surfaces shall be coated with a form release agent before reinforcement is placed. The form release agent shall be a commercial formulation of satisfactory and proven performance that will not bond with, stain, or adversely affect concrete surfaces, and will not impair subsequent treatment of concrete surfaces. The release agent shall be used as recommended in the manufacturer's printed or written instructions. Forms for unexposed surfaces, other than retained in-place metal forms, may be wet with water in lieu of coating immediately before placing concrete, except that in cold weather with probable freezing temperatures, coating shall be

mandatory. Surplus debonding agents on form surfaces, reinforcing steel, and construction joints shall be removed before the concrete is placed.

- E. Prior to coating with the above-specified release agent, wood forms shall be sealed with a penetrating type wood sealer. The sealer shall be applied in strict accordance with the manufacturer's recommendations.

2.2 DESIGN

- A. Formwork must be designed, constructed, supported, braced, and maintained so that it will safely support all dead and live loads to which it may be subjected. Formwork shall be sufficiently tight to prevent leakage of mortar so that finished concrete will conform to shapes, lines, grades, and dimensions indicated in the drawings.
- B. The weight of the formwork, freshly placed concrete, workmen and equipment, rate of placement and temperature, tamping, and vibration of the concrete shall all be considered in the design of the formwork. Forms and falsework to support roof and floor slabs shall be designed for a loading of at least that required by ACI 347.

PART 3 -- EXECUTION

3.1 CONSTRUCTION

- A. **Formwork** - Forms shall be designed, constructed, and maintained to ensure that after the removal of forms, the finished concrete members will have true surfaces free of deformities or bulges, conforming accurately to the indicated shapes, dimensions, lines, elevations, and positions. Recommendations given in ACI 347 shall be followed. Form surfaces that will be in contact with concrete shall be thoroughly cleaned before each use.
- B. **Studs** - Studs shall be spaced to prevent deflection of form material. Forms and joints shall be sufficiently tight to prevent leakage of grout and cement paste during the placing of concrete. Joints in forms shall be arranged vertically or horizontally to conform to the pattern of the design. Insofar as practicable, the juncture of formwork panels shall occur at architectural lines and vertical control joints, including alignment with masonry control joints and construction joints. Forms placed on successive units for continuous surfaces shall be fitted to accurate alignment to ensure smooth, completed surfaces free from irregularities. Temporary openings shall be arranged in the wall and column forms and where otherwise required to facilitate cleaning and inspection. Forms shall be readily removable without impact, shock, or damage to the concrete.
- C. **External Corners** - External corners of piers, and other external corners that will be exposed shall be beveled, rounded, or chamfered by moldings placed in the forms.

3.2 FORM TIES

- A. **Embedded Ties**: Wire ties for holding forms will not be permitted. No form-tying device or part thereof, other than metal, shall be left embedded in the concrete. Ties shall not be removed in such a manner as to leave a hole extending through the interior of the concrete members. The use of snap ties that cause spalling of the concrete upon form stripping or tie removal will not be permitted. If steel panel forms are used, rubber grommets shall be provided where the ties pass through the form in order to prevent the loss of cement paste. Where metal rods extending through the concrete are used to support or strengthen forms, the rods shall remain embedded and shall terminate not less than 1-1/2 inches back from the formed face or faces of the concrete.
- B. **Removable Ties**: Where taper ties are approved for use, after the taper tie is removed, the hole shall be thoroughly cleaned and roughened for bonding. A precast neoprene or polyurethane tapered plug shall be located at the wall centerline. The hole shall be completely filled with non-shrink or regular

cement grout. Exposed faces of walls shall have at least the outer 2 inches of the exposed face filled with cement grout which shall match the color and texture of the surrounding wall surface. The CONTRACTOR shall be responsible for water-tightness and any repairs needed.

3.3 FORM REMOVAL

- A. Forms shall be removed in a manner that ensures the complete safety of the structure. Where the structure as a whole is supported on shores, forms for beam and girder sides, columns, and similar vertical structural members may be removed after 48 hours, provided the concrete is sufficiently hard not to be injured thereby. Supporting forms or shoring shall not be removed until structural members have acquired sufficient strength to support safely their own weight and any construction and/or storage load to which they may be subjected, but in no case shall they be removed in less than 7 days, nor shall forms used for curing be removed before the expiration of curing period. Care shall be taken to avoid spalling the concrete surface or damaging concrete edges. Wood forms shall be completely removed.
- B. Supporting forms or shoring shall not be removed until the strength of control test specimens has attained a value of at least 3,000 psi for column and 3,000 psi for all other work. Test specimens required for control tests to determine form removal time shall be provided in numbers as directed and shall be in addition to those otherwise required for concrete control. Test specimens shall be removed from molds after 24 hours and stored adjacent to that portion of the structure which they represent and shall receive, insofar as practicable, the same protection from the elements during curing as is given those portions of the structure which they represent and shall not be removed from the structure for transmittal to the laboratory prior to the expiration of three-fourths of the proposed period before removal of the forms. Care shall be exercised to ensure that the newly unsupported portions of the structure are not subjected to heavy construction or material loading.
- C. Forms for all parts of the work not specifically mentioned herein shall remain in place for periods of time as determined by the ENGINEER.
- D. Recommendations for shoring given in ACI 347 shall be followed for all re-shoring.

**** END OF SECTION ****

SECTION 03 20 00 - CONCRETE REINFORCEMENT

PART 1 -- GENERAL

1.1 THE REQUIREMENTS

- A. CONTRACTOR shall include all the necessary ties, chairs, and accessories required for support and spacing of the reinforced steel, reinforcement in masonry bond beams, all mesh columns, and end reinforcing as detailed.
- B. All concrete and steel have been designed to conform with ACI 318, and details on all steel shall conform therewith and with Chapter 5 of ACI 301.
- C. Fabrication tolerances, placement, detailing, and estimating practice shall be in accordance with the "Manual of Standard Practice", latest edition of the CRSI, and as covered in Chapter 8, "Placing Reinforcing Bars".

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Commercial Standards

ACI 301	Specifications for Structural Concrete
ACI 315R	Guide to Presenting Reinforcing Steel Design Details
ACI 318	Building Code Requirements for Structural Concrete
A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM A615	Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
AWS D1.4	Structural Welding Code – Steel Reinforcing Bars

1.3 SUBMITTALS

- A. CONTRACTOR shall submit shop drawings to the ENGINEER in accordance with Section 01 33 00 for approval prior to fabrication. Sizes, dimensions for fabrication and diagram for placement of bars, and type and location of all accessories shall be indicated. No fabrication shall proceed on any section until approved drawings are received on such section.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. Deformed Billet steel bars shall conform to ASTM A615, Grade 60, as shown in engineering notes on the structural detail plans.
- B. Welded steel wire shall conform to ASTM A1064. Wire size and location are shown on the plans.
- C. Chairs for slabs exposed to view shall be plastic-coated steel, or approved equal, to prevent rust stains on the exposed concrete.

2.2 SPACERS

- A. Provide spacers with tie wire at proper intervals to hold slab bars in position and to raise them above forms to distances shown. Support reinforcing on bolsters or chairs and carrying bars whether or not specifically called for in drawings. Provide wire bar type supports complying with ACI 315R, unless otherwise indicated. Do not use wood, brick, and other unacceptable materials.

PART 3 -- EXECUTION

3.1 FABRICATION

- A. Reinforcing bars shall be bent cold, in the shop, with proper equipment for making cold bends. Field bending of reinforcement will not be allowed.

3.2 CLEANING AND STORAGE

- A. Reinforcement upon delivery and before installation shall be cleaned and free of rust, scale, dirt, grease, oil, snow, ice, etc.
- B. Reinforcement shall be protected from rusting in storage. Steel having deposits of scale will be rejected.

3.3 PLACEMENT

- A. Reinforcement shall be placed accurately according to the plans and secured in position by approved accessories. The minimum clear distance between parallel bars shall not be less than 1-1/2 times the normal size of the coarse aggregate and shall be as required by ACI 318.
- B. No splices of reinforcement shall be made except as shown on the plans or as specified or authorized by the ENGINEER. Reinforcing shall be kept in the proper position during concrete placement.

3.4 REINFORCEMENT COVER

- A. The reinforcement shall be protected by the thickness of concrete indicated on the plans. Where not shown otherwise, concrete coverage over the reinforcement shall be as follows:

Location of Reinforcement	Cover
Surfaces where concrete is deposited directly against the ground (footings)	3" Clear bottom and sides
Formed surfaces exposed to the ground, water, or weathering (walls)	2" - Both faces
Beams, girders, and columns	1-1/2" - Clear to ties or stirrups
Joists, slabs	1" Bottom and top

- B. Exposed reinforcing bars intended for bonding with future extensions shall be protected from corrosion by concrete or other adequate approved coverings, or as shown in the drawings.

**** END OF SECTION ****

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 -- GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications Sections, apply to this Section.

1.2 SUMMARY

- A. This section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Slabs-on-grade, foundation walls, footings, and piers

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement and fly ash subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, and supports for concrete reinforcement.

1.5 QUALITY ASSURANCE

- A. Installer Qualification: A qualified installer who employs project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products that comply with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician – Grade 1. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician – Grade II.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specification for Structural Concrete" - Sections 1 through 5.
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials".
- F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 -- PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where the titles below introduce lists, the following requirements apply to product selection:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 FORM-FACING MATERIALS

- A. Rough-formed finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for a tight fit.
- B. Chamfer Strips: Wood, metal, PVC, or rubber strips, $\frac{3}{4}$ by $\frac{3}{4}$ inch, minimum.
- C. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice", of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar support contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or another dielectric-polymer-coated wire bar supports.
 - 3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout the Project:
 - 1. Portland Cement: ASTM C 150, Type I, gray. Supplement with the following:
 - (a) Fly Ash: ASTM C 618, Class C or F.
- B. Normal-Weight Aggregates: ASTM C 33, course aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse Aggregate: Final grading shall conform to the requirements of ASTM C33.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by the manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C494M, Type A.
 - 2. Retarding Admixture: ASTM C494/C494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.7 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet
- B. Water: Potable

2.8 RELATED MATERIALS

- A. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene-butadiene.

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare certified design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Use fly ash, as needed to reduce the total amount of Portland cement, which would otherwise be used. Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:
 - 1. Fly Ash: 25 percent.

- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- D. Admixtures: Use admixtures according to the manufacturer's written instructions.
 - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Proportion the normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 4 inches, plus or minus 1 inch.
 - 4. Air Content: 6 percent, plus or minus 1.5 percent at the point of delivery for 1-inch or ¾-inch nominal maximum aggregate size. No air shall be used on interior concrete slabs that are not subject to freeze and thaw effects.

2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice".

2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
 - 1. When the air temperature is between 85 and 90 deg F, reduce missing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 -- EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until the structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.

- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where the interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. Do not chamfer exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with a form-release agent, according to the manufacturer's written instruction, before placing reinforcement.

3.2 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.3 JOINTS

- A. General: Construct joints true to line with faces perpendicular to the surface plane of concrete.
- B. Construction Joints: Install so the strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
 - 1. Place joints perpendicular to the main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.

3.4 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at the project site, or during placement unless approved by Engineer.

- C. Before test sampling and placing concrete, water may be added at the project site, subject to limitations of ACI 301.
 - 1. Do not add water to the concrete after adding high-range water-reducing admixtures to the mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate the placed layer and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit the duration of vibration to the time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess bleed water appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
 - 1. Maintain concrete temperature below 90 deg F at the time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided the water equivalent of ice is calculated to the total amount of mixing water. Using liquid nitrogen to cool concrete is the Contractor's option.
 - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.5 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Related Unformed Surfaces: At the tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.6 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

3.7 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture-Retaining-Cover Curing: cover concrete surfaces with moisture-retaining cover for curing concrete, placed in the widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during the curing period using cover material and waterproof tape.
 - (a) Moisture cure or use moisture-retaining covers to cure concrete surfaces.

3.9 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.

- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part Portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks spalls, air bubbles, honeycombs, rock pockets, fins, and other projects on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than ½ inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to the concrete surface. Clean, dampen with water, and brush-coat holes and voids with the bonding agent. Fill and compact with patching mortar before the bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with the bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match the surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than the surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Repairing Unformed Surfaces: Test unformed surfaces such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, pop-outs, honeycombs, rock pockets, crazing, and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After the concrete has cured for at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing them with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix and apply repair underlayment and primer according to the manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low elevations. Prepare, mix, and apply repair topping and primer according to the manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a ¾-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply a bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
 - 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply a bonding agent. Place patching mortar before the

bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: The Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - (a) When the frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: ASTM C 143/C 143M; one test at the point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: ASTM C 1064/C 1064M: one test hourly when the air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - 6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 7. Compression Test Specimens: ASTM C 31/C 31M.
 - (a) Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - (b) Cast and field cure two sets of two standard cylinder specimens for each composite sample.

8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - (a) Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - (b) A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from the same composite sample and tested at the age indicated.
9. When the strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, the Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
11. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of the concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, and other non-destructive devices may be permitted by Engineer but will not be used as the sole basis for approval or rejection of concrete.
13. Additional Tests: The testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.

****END OF SECTION****

SECTION 00 31 32

GEOTECHNICAL DATA

PART 1 - GENERAL

1.1 DESCRIPTION

A. Subsurface Geotechnical Evaluation Report:

1. Soil test borings were conducted at the project site by an independent soil testing company employed by the Owner. The logs of these borings and related subsurface geotechnical evaluation report are included within the Project Manual for the Contractor's reference.

B. Qualifications:

1. Soil investigation data and logs are for informational purposes only. Neither the Engineer nor Owner assume responsibility for its accuracy. Because borings cover a relatively small area of each construction site, this information is not necessarily typical of entire site.
2. Recommendations included in the subsurface geotechnical evaluation report are non-binding to the Contract. Requirements of the Contract related to soils and other materials are found in the technical specifications, divisions 31 and 32, of this Project Manual.
 - (a) Should differences arise between the recommendations found in the subsurface geotechnical evaluation report and the specifications, the specification shall be followed.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 00 31 32

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 -- GENERAL

1.1 SUMMARY

- A. Provide labor, material, facilities, and administration required to furnish and install all rough carpentry needed for a complete building.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01 33 00 - Submittals
- B. Section 03 11 00 - Concrete Formwork

1.3 REFERENCE STANDARDS

A. Commercial Standards

PS-1	Construction and Industrial Plywood
PS-20	American Softwood Lumber Standard
AWPA C1	AWPA Manual of Recommended Practice
NFPA	National Forest Products Association National Design Specification for Wood Construction

B. Federal Standards

Fed. Spec. FF-B-561C	Lag and Screw Bolts
Fed. Spec. FF-B-575C	Hexagon and Square Bolts
Fed. Spec. FF-B-584E(1)	Bolts, Finned Neck; Key Head; Machine; Ribbed Neck; Square Neck; Tee Head.
Fed. Spec. FF-B-588C(1)	Bolt, Toggle: And Expansion Sleeve, Screw.
Fed. Spec. FF-N-105B(3)	Nails, Brads, Staples, and Spikes; Wire, Cut, and Wrought.
Int. Amd. 4	
Fed. Spec. FF-N-836D(1)	Nut: Square, Hexagon, Cap, Slotted, Castle, Knurled, Welding, and Single Ball Seat.
Fed. Spec. FF-S111D	Screw, Wood.
Fed. Spec. FF-S-1362	Stud, Plain, General Purpose.

1.4 QUALITY ASSURANCES

- A. All lumber shall be reasonably dry, live, sound, commercially dried, and free of warps that cannot be corrected in anchoring and from other defects impairing durability or strength. All lumber shall be kiln-dried.
- B. Furnish and install all rough hardware or other metal fastenings indicated or required for proper installation of Carpentry, Millwork, and other items noted. Nails, spikes, screws, bolts, etc., shall be of sizes and types required to rigidly secure members in place.

PART 2 -- PRODUCTS

2.1 MATERIALS AND GRADES

- A. Studs, plates, blocking, and furring lumber shall be "no. 2 grade" Southern Pine, S4S, not over 18% moisture content. Unless noted otherwise on the drawings.
- B. Grades shall conform to the specifications of the Association of Lumber Manufacturers producing materials specified.
- C. All wood blocking at the roof perimeter and blocking for metal coping shall be pressure treated.
- D. All plywood shall be Southern Pine, exterior grade, and pressure-treated.
- E. Nails, Spikes, and Staples: galvanized for all locations. Size and type to suit the application.
- F. Bolts, Nuts, Washers, Lags, Pins, and Screws: Medium carbon steel; sized to suit application galvanized for exterior locations, high humidity locations, and treated wood; plain finish for other interior locations.
- G. Fasteners: Expansion shield and log bolt type for anchorage to solid masonry or concrete. Bolts or power activated type for anchorage to steel.

PART 3 -- EXECUTION

3.1 GENERAL

- A. Install miscellaneous blocking, furring, nailing strips, framing, and sheathing.
- B. Install members true, plumb, and level. Secure in place.
- C. Space miscellaneous framing and furring at 24-inches on center unless noted otherwise.
- D. Construct members of continuous pieces of the longest possible lengths.

3.2 FASTENERS AND FRAMING DEVICES

- A. **Nailing:** Where nail spacing is not otherwise regulated by the Building Code, nails shall not be driven closer together than 1/2 their length unless driven in drilled holes, not driven closer to the edge of a member than 1/4 of their length. When necessary to prevent splitting, holes shall be drilled slightly smaller than nail diameters. The nails shall penetrate the second or farther member not less than 1/2 the nail length.
- B. **Bolts and Nuts:** Malleable or cut-steel washers shall be provided under bolt heads and nuts except where bearing on steel plates or other steel attachments or where flat-head countersunk bolts are shown. Bolt holes shall be drilled 1/32-inch to 1/16-inch larger diameter than the bolts they are to accommodate, and shall be bored true-to-line. Members shall be clamped together, and bolts shall be driven in place and nuts drawn up tightly. Bolts shall be drawn tight again immediately prior to enclosing with finish or, if left exposed, upon completion of other work. Holes at anchor bolts embedded in concrete may be 1/16-inch larger than the bolt diameter.
- C. **Screws:** Lag and wood screws shall be screwed, not driven, into place. Holes to receive lag screws shall be bored first of the same diameter and depth as the shank, then continued to a depth equal to the length of the screw with a diameter equal to the base of the screw thread. Screws shall penetrate into the farther member at a distance equal to at least 7 times the diameter of the screw shank. Washers shall be installed under each lag screw head bearing on wood.

- D. **Metal Framing Devices:** Metal framing devices shall be furnished and installed where shown. Nails for the framing devices shall be as furnished or recommended by the manufacturer of the anchor device. All nails shall be driven to their full depth at all holes in anchors. Bolt and lag fasteners shall be drawn tight.

**** END OF SECTION ****

SECTION 06 17 36 – OPEN-WEB PIN-CONNECTED TRUSSES

PART 1 -- GENERAL

1.1 SCOPE

- A. Shop fabricated open-web pin-connected trusses with wood chords and tubular steel webs

1.2 REFERENCE STANDARDS

- A. ICC-ES Acceptance Criteria for Pin-connected Open-web trusses with wood chords and tubular steel webs (AC306)
- B. International Code Council (ICC) ES Report ESR-1774

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Rough Carpentry
 - 1. Dimension lumber framing
 - 2. Floor and roof sheathing
 - 3. Engineered wood products members
 - (a) Wood rim boards
 - (b) Metal framing connectors

1.4 SUBMITTALS

- A. Product data: Manufacturer's literature on products, installation, fire assemblies, sound assemblies, and connectors.
- B. Drawings:
 - 1. consistent with member types, spacing, and design loads indicated in the project construction documents
 - 2. truss schedule indicating series, profiles, depths, quantity, pitch, and camber
 - 3. layouts, showing framing members, spacing, framed openings, outriggers, bracing, and bearing
 - 4. Details indicating bearing clips, fastener spacing, and attachment of trusses to adjacent construction
- C. Design Calculations
 - 1. Stamped or sealed by manufacturers' licensed engineer registered in the state where the project is located.
- D. Production:
 - 1. Fabrication shall not proceed until the contractor and architect/project engineer have returned the approved submittal package.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store all material on a level surface on raised wood sleepers tall enough to prevent splash from precipitation. Sleepers should be placed below bottom chord truss pin connections.

- B. Protect material from weather. Securely anchor waterproof sheeting to protect stored material. Provide air circulation under sheeting to prevent mold or excess humidity.
- C. Provide sufficient space around stored trusses to prevent damage and to provide access for material handling.
- D. Store trusses in upright vertical position, banded together in bundles.
- E. Inspect stored material immediately after delivery to the job site and prior to installation. If trusses are damaged, immediately notify the project architect/engineer and truss manufacturer. Do not install damaged material.

PART 2 -- PRODUCTS

2.1 OPEN-WEB PIN-CONNECTED TRUSSES: BASIS OF DESIGN

- A. Provide RedBuilt, LLC open-web pin connected trusses, truss hardware, consistent with series and profiles indicated in the construction documents, unless a substitute manufacturer is approved as an acceptable alternate by the project architect/structural engineer at least seven days prior to the bid date.
- B. Manufacturer Acceptable Alternative Request
 - 1. In addition to Division 1 Project Requirements, manufacturers requesting to be considered as an acceptable alternate will provide the following during the project bid period:
 - (a) Documentation showing a minimum of three years of experience fabricating open-web pin-connected trusses meeting the requirements of ICC-ES Acceptance Criteria for Pin-connected Open-web trusses with wood chords and tubular steel webs (AC306).
 - (b) Code reports indicating that design properties meet or exceed the design properties of the specified manufacturer and series. Manufacturer requesting substitution will clearly indicate all properties that are lower than the Basis of Design products' design properties.
 - (c) Current International Code Council (ICC) ES Report for the proposed substitute products.
 - (d) Documentation that required submittals will be performed under direct supervision of a Professional Engineer experienced in open-web truss design and licensed in the state or province where the project is located.
- C. Open web pin-connected trusses: materials
 - 1. Wood Chords shall be finger jointed MSR (MACHINE STRESS RATED) lumber, laminated veneer lumber, or laminated strand lumber with strength properties required to support the project design loads and meet performance requirements.
 - 2. Tubular steel webs, solid steel connecting pins, bearing clips and truss accessories consistent with manufacturing standards and sufficient to meet the project design loads and performance requirements.
 - 3. Provide spring-clip washers on the ends of connecting pins for all trusses with chords in a vertical orientation (RedBuilt Red-S, Red-M, Red-H).

2.2 IDENTIFICATION

- A. Each truss will be marked with a stamp or sticker indicating the truss series, ICC-ES report number, manufacturer's name, plant location, and independent inspection agency logo.

- B. Each truss bundle will be marked with the manufacturing date, project name, and member designation that matches the submittal drawings.
- C. Asymmetric trusses: mark one end of bearing chord with paint to indicate starting line based on corresponding truss shown in the submittal drawings.

2.3 METAL FRAMING CONNECTORS FOR OPEN-WEB TRUSSES

- A. Simpson Strong-Tie, Inc. framing connectors for open-web trusses with published design values that meet or exceed the project design loads.
- B. Framing connector finish:
 - 1. Interior low corrosion environments:
 - (a) Concealed framing connectors: zinc galvanized (G90).
 - (b) Exposed framing connectors: powder coated baked on paint.
- C. Fasteners for metal framing connectors shall be of the size and material recommended by the framing connector manufacturer to support the loads being transferred. Fastener coatings shall match the finish of corresponding metal connectors.

2.4 FABRICATION

- A. The trusses shall be manufactured in a plant listed in the manufacturer's ICC-ES report under the supervision of a third-party inspection agency.
- B. Fabricate trusses with camber indicated on project construction documents. Where camber is not indicated in the construction documents,
 - 1. Sloped Snow Roofs: equal to the dead load deflection plus one half the live load deflection.
 - 2. Flat Snow Roofs: equal to the total load deflection.
 - 3. Non-Snow Roofs: equal to 1.5 times the dead load deflection.
 - 4. Floors: equal to 1.5 times the dead load deflection.

PART 3 -- EXECUTION/ INSTALLATION

3.1 GENERAL

- A. Open web pin-connected trusses should only be installed in dry service condition environments.
- B. Verify that supporting construction is plumb, level, undamaged, and ready to support open-web trusses.
- C. Verify that field dimensions of supporting material are consistent with the dimensions indicated on the layout submittal drawing. Do not install open-web trusses until field dimensions match the dimensions shown on the layout drawings.
- D. Install open-web trusses in compliance with the manufacturer's written installation information.
- E. Set open-web trusses plumb and level in the correct location.
- F. Use fasteners recommended by connector manufacturer to attach trusses to bearings, framing connectors, bracing, bridging and accessories. Use proper fastener diameters and lengths to fill every fastener hole in bearing clips, framing connectors, bracing, and accessories.

- G. Install temporary safety bracing as each truss is placed.
- H. Install permanent bracing indicated on layout drawings.
 - 1. Starter strut bracing: 2x4 anchored to end wall, beam, or ledger.
 - 2. Floor strut bracing: tubular steel flattened and attached to underside of top chord of open web trusses.
 - 3. Roof strut bracing: tubular steel flattened and attached to the upper side of the top chord of open web trusses.
 - 4. Install strongback bridging and bottom chord nailers. Provide 12" overlap at bridging and nailer end splices.
 - 5. Cross bracing: Install cross bracing on each bottom bearing truss as each truss is set.
- I. Do not stack construction material on open-web trusses before all truss bearings and bracing are permanently attached. Do not exceed project design loads for stored building material.
- J. Do not walk on trusses until all bearings and bracing have been permanently attached.
- K. Install blocking, headers and opening supports indicated on submittal documents.
- L. Prior to enclosing the trusses, the Contractor shall give notification to the open-web truss manufacturer's field representative to provide an opportunity for review of the installation.
- M. Do not field cut or modify open-web trusses and accessories without approval of the project architect or structural engineer.

3.2 FIRE RATING/ SOUND RATINGS

- A. Fire and sound ratings are to be established in accordance with assemblies detailed in one of the following:
 - 1. ICC ES Report No. ESR-1774
 - 2. Directory of Listed Products published by PFS Corporation
 - 3. Intertek Spec ID 34752.

3.3 WARRANTY

- A. Open-web trusses shall be free from manufacturing errors or defects in workmanship and material. The products, when correctly installed and maintained, shall be warranted to perform as designed for the normal and expected life of the building.

3.4 PROTECTION

- A. Protect open-web trusses from damage and moisture during storage, installation, and through completion of the project.

**** END OF SECTION ****

SECTION 10 75 16

GROUND-SET FLAGPOLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Flagpole and related fittings and accessories.
 - (a) Quantity shown on the Drawings.
 - 2. Concrete footing for flagpole and related excavation.
 - 3. One flag for each flagpole.

1.2 SUBMITTALS

- A. Submit information and shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information:
 - 1. Flagpole
 - (a) Model number
 - (b) Height
 - (1) Mounting height
 - (2) Set depth
 - (c) Butt Diameter
 - (d) Wall Thickness
 - (e) Number of Sections
 - (f) Finish
 - (g) Halyard type
 - 2. Flag
 - (a) Dimensions

1.3 COORDINATION

- A. Coordinate installation with pavement construction.
- B. Coordinate installation with the electrical contractor.

1.4 QUALITY ASSURANCE

- A. Installer's Qualifications:
 - 1. Flagpole shall be installed by an accredited erection crew experienced in the handling, assembly, and placement of flagpoles.
- B. Flagpole, base, and anchorage device shall be designed to resist a minimum 90 mph wind velocity, unflagged. Wind speed specifications shall meet ANSI/NAAMM FP 1001-07.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Spiral-wrap each flagpole with heavy Kraft paper, wood strip, and steel band or polyethylene wrap and pack in tube prior to shipment.
- B. Deliver flagpoles in original wrappings.

- C. Flagpoles with an overall height of:
 - 1. 38 feet or less shall be shipped in one piece.
 - 2. Greater than 38 feet and less than 75 feet shall be shipped in two pieces.
- D. Storage and Protection:
 - 1. Store flagpoles, in original wrappings, in area protected from weather, moisture, and damage.
 - 2. Handle flagpoles so as to prevent damage or soiling.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Flagpole
 - 1. Material
 - (a) Alloy 6063-T6 tapered aluminum tube, heat treated.
 - 2. Finish
 - (a) Finish shall be fine, non-directional, mechanical polish. Buff and seal surface with clean hard-coat wax.
 - (b) Finish shall be Clear Anodized.
 - (1) Confirm this finish with the Owner.
 - 3. Cone Taper
 - (a) Seamless, uniform, straight line tapered 1-inch to every 5.5 feet of length, above cylindrical butt section.
 - (b) Where splicing of flagpoles is required, provide internal splicing, self-aligning sleeve of same material as flagpole for snug fitting, precision field joint without welding.
 - (c) Exposed Height: 30 feet
 - (d) Set Depth: 3'-6"
 - (e) Butt Diameter: 7 inches
 - (f) Top Diameter: 3.5 inches
 - (g) Wall Thickness: 0.188 inches
 - (h) Sections: Single section
 - 4. Approved Products:
 - (a) 30' Mounting Height Flagpole:
 - (1) Concord American Flagpole, 800-527-3902, www.concordamericanflagpole.com, Titan Series Model #IWW30D71G.
 - (2) Or Approved Equal.
- B. Mounting Assembly
 - 1. Ground set foundation assembly.
 - 2. Foundation Sleeve
 - (a) Corrugated galvanized steel tube, a minimum of 16 gauge.

3. Foundation Sleeve Plate
 - (a) 3/8-inch to 1/2-inch thick steel plate whose square dimension is a minimum of 4 inches larger than the inside diameter of the foundation sleeve.
4. Centering Wedges
 - (a) Weld internal steel wedges to foundation sleeve plate and foundation sleeve for centering of flagpole.
5. Ground Spike
 - (a) 3/4-inch diameter steel lightning arrestor spike to extend a minimum of 12 inches below footing, welded to foundation sleeve plate.
6. Foundation Support Plate
 - (a) 1/4-inch steel plate welded to ground spike at base of concrete foundation.
- C. Base Collar: Spun aluminum of same finish as pole.
 1. Profile: Round, tapered.
 2. Size: Diameter of collar shall be at least 1 inch larger than diameter of foundation sleeve.
- D. Fittings
 1. Truck
 - (a) Revolving, non-fouling cast aluminum, concealed halyard type, complete with stainless steel ball bearings and one 2 3/8-inch steel sheave.
 2. Internal Halyard
 - (a) 1/8-inch stainless steel aircraft cable with attachment ends secured to 1/8-inch steel yokes and joined by a split repair link. Halyard shall be complete with 2 chrome swivel-snaps, neoprene coated counterweight and beaded nylon retainer ring.
 3. Winch
 - (a) Stainless steel direct drive winch, operable only with a removable crank handle. Winch shall be gearless and shall be capable of being locked in any position by removing handle. Access to winch shall be through reinforced opening covered by access door with tumbler cylinder lock.
- E. Flag
 1. Confirm Flag size with Owner.
 2. Polyester flag produced from a premium, tear-resistant spun polyester fabric.
 3. 2-Ply construction.
 4. Lock stitched reinforced seams.
 5. Approved Products:
 - (a) Concord American Flagpole, 800-527-3902, www.concordamericanflagpole.com
 - (b) Or Approved Equal.
- F. Concrete shall be 4,000 psi, air entrained, concrete.

PART 3 - EXECUTION

3.1 CONDITION OF SITE

- A. Do not begin work prior to completion of finish grading.

3.2 INSPECTION

- A. Inspect foundation for proper depth and size of sleeve.

3.3 PREPARATION

- A. Paint portions of flagpole below grade with heavy coat of bituminous paint.

3.4 CONCRETE FOOTING INSTALLATION

- A. Auger footing hole only in firm, undisturbed, or compacted soil.
- B. Auger footing hole depth at least 6 inches deeper than mounting assembly bottom.
- C. Place concrete around mounting assembly in a continuous pour and tamp for consolidation.

3.5 INSTALLATION

- A. Install flagpole, mounting assembly, and fittings in accordance with manufacturer's instructions.
- B. Install flag pole plumb.
- C. Provide positive lightning grounds for flagpoles.

3.6 ADJUSTMENT AND TESTING

- A. Check and adjust installed fittings for smooth operation of halyard.

3.7 CLEANING AND PROTECTION

- A. Remove from the site all excess soils from post hole excavation, spillage of concrete, cut wires, materials, and other related materials.

END OF SECTION 10 75 16

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Employ a utility locating company to locate all privately owned utilities.
 - 2. Construction and continual maintenance of haul roads, temporary construction parking and laydown areas.
 - 3. Construction of, temporary drainage piping and conveyance ways, temporary diversion berms, and removal and restoration following use of these temporary facilities.
 - 4. Maintaining existing site, adjacent properties and public streets clean on a daily basis from construction caused dirt and debris.
 - 5. Maintaining dust control during grading operations. Providing for watering of soils to control dust.
 - 6. Provide stockpile management.
 - 7. Stripping and stockpiling of topsoil and other soils to be reused.
 - 8. Earthwork (cutting and filling).
 - 9. Compacting fill and backfill.
 - 10. Removal and replacement of unsuitable or unstable soils.
 - 11. Dewatering of site and excavations to maintain workable conditions and to protect on-site soils from becoming unstable.
 - 12. Excavating on-site soils or importing soils for construction of building pad subgrade, pavement subgrade, sand subbase, sand base, and in conjunction with dewatering operations, as needed.
 - 13. Exporting excess, unsuitable, or waste soils from the site and importing suitable soils to the site to complete the work.
 - 14. Shoring, bracing and underpinning of existing buildings.
 - 15. Building Pad subgrade construction and Engineered Fill for building pads.
 - 16. Footing and foundation excavation, backfilling and compaction.
 - 17. Stabilized aggregate base on the building pad.
 - 18. Foam insulation at frost footed stoops.
 - 19. Pavement subgrade construction, maintenance, testing, and approval prior to placement of pavement base materials. Continue maintenance until pavement base materials are constructed.
 - 20. Sand subbase in asphalt pavement areas.
 - 21. Sand base or stabilized aggregate base under slabs.
 - 22. Spreading topsoil and importing specified topsoil as required.
- B. Work Not Included in this Section:
 - 1. Drain tile at Building - Refer to Architectural Plans and Details.

1.2 SUBMITTALS

- A. Submit information and shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information and shop drawings:
 - 1. Foam Insulation
- C. Submit samples of subgrade soils, proposed aggregates, sands, backfill, and fill materials to the testing laboratory at least three days prior to placement for evaluation of their suitability and determination of the optimum moisture content and maximum dry density.
- D. Submit shoring, bracing and underpinning plans and calculations for review by the Geotechnical Engineer.
- E. Submit an As-Built Survey.

1.3 DEFINITIONS

- A. Backfill: Placing of approved site soil or borrow material in accordance with specified procedures and compaction to establish elevations shown for site improvements and general rough grading.
- B. Borrow Material: Approved soil materials for fill, backfill, or rough grading required, from sources other than those made available by stripping of excavation of site.
- C. Building Area: The area of the site within a line three feet outside of the proposed building perimeter and extending at a slope of 1:1 (horizontal to vertical) to the bottom of the excavation.
- D. Clearing: Removal of trees, vegetation, rubble and other unsuitable materials from the site or limits of work.
- E. Engineered Fill: Placing of approved site material or borrow material in accordance with specified procedures and compaction to achieve an assumed soil bearing capacity specified herein for building footings.
- F. Excavation: Cutting, digging and removing soil materials of every classification and of whatever substance encountered to dimensions, limits, elevation and contours shown on the Drawings.
- G. Existing Site Material: Stripped and excavated material from work, of approved classification. Material must be approved by testing agency prior to placement.
- H. Geotechnical Engineer: The Owner will employ and pay for the services of a soil testing and inspection service, the Geotechnical Engineer and Testing Laboratory representatives, for quality control testing of the earthwork operations. This individual or company is not the design engineer of record for the project.
- I. Pavement Area: The area within concrete or asphalt pavement areas within a line one foot beyond the pavement limits and extending at a slope of 1:1 to the bottom of the excavation.
- J. Prepared Subgrade: Upper part of subgrade that is compacted to a greater density than lower portion of subgrade or subsoil. This material occurs beneath drives, roadways, and parking areas.
- K. Rock: Rock excavation is defined to include all hard, solid rock in ledge formation, bedded deposits and unstratified masses; all-natural conglomerate deposits so firmly cemented as to present all the characteristics of solid rock; and any boulder stone, masonry or concrete fragments exceeding one cubic yard in volume. Materials such a shale, hard pan, soft or disintegrated rock which can be dislodged with a power operated excavator will not be classified as rock excavation.
- L. Soil Classification: Classification of soils for engineering purposes, ASTM D2487 Unified Soils Classification System (USCS) with divisions, group symbols, typical names and criteria referenced herein.
- M. Stripping: Excavation and removal of topsoil, fill and any other upper layers of soils.
- N. Subbase: Compacted fill upon which stabilized aggregate base is placed.
- O. Subgrade: Subsoil in place, backfill or fill material upon which subbase, stabilized aggregate base, footings, or sand bases are placed.
- P. Subsoil: Natural soil in place on the site.

- Q. Topsoil: Fertile, friable, natural loam containing a liberal amount of humus and capable of sustaining vigorous plant growth. The pH value of the topsoil shall be between 5.5 and 7.5.
- R. Unstable Materials: Materials which are not classified as unsuitable materials, but due to their condition of being too wet, too dry, over-compacted, are unacceptable.
- S. Unsuitable Materials: Rock, loam, gumbo, mud, muck, silt, organic silty clay, peat, frozen soils, boulders, debris, rubbish, old foundations, pavements, slabs, vegetation, or highly organic soils.

1.4 JOB CONDITIONS

A. Site Information:

1. All information concerning property boundaries, ground elevations, present obstructions on or near the site, location of conduits, pipes, wires, etc., has been obtained from a source the Owner believes reliable. Present soil and subsurface conditions are documented by test boring logs included herein, however accuracy of this data is not guaranteed, and is furnished solely for the convenience of the Bidder. Use of this data is at Bidder's risk and no additional compensation will be granted because of the Bidder's lack of knowledge of the existing site.
2. Test borings and other exploratory operations may be conducted by a Bidder, at no cost to the Owner, provided the methods and operations are acceptable to the Owner.
3. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult appropriate utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair any damaged utility(s) to satisfaction of utility owner.
4. Visit the site prior to bidding and be familiar with actual conditions in the field. Extra compensation will not be allowed for conditions which could have been determined or anticipated by examination of the site, the Contract Documents, and the information available pertaining to existing soils, utilities and other site characteristics.
5. Maintain carefully, as established, temporary benchmarks, monuments, and other reference points and, if disturbed or destroyed by the Contractor, pay for replacement by a registered Engineer or Land Surveyor.
6. Locate existing underground public and private utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

1.5 QUALITY ASSURANCE

- A. Employ and pay for the services of a Registered Land Surveyor to layout the Work and locate and mark associated benchmarks. Refer to Section 01 71 23 - Field Engineering.
- B. The Owner will employ and pay for the services of a soil testing and inspection service (Geotechnical Engineer and Testing Laboratory) for quality control testing of the earthwork operations.
- C. A Testing Laboratory representative must be present during stripping, excavation, backfilling, and compaction operations. Services which will be performed by the Testing Laboratory:
 1. The Testing Laboratory will test and inspect excavations within building areas, prior to any filling, to ensure that unsuitable soils have been completely removed and unstable soils have been stabilized or removed. Tests will be performed in the bottoms of the excavations to evaluate if the bearing capacity of the natural soils is at least 2,500 pounds per square foot (psf) for footings.
 2. The Testing Laboratory will test and inspect excavations within paved areas, prior to any filling, to ensure that unsuitable soils have been completely removed within the upper three feet of subgrade, and unstable soils have been stabilized or removed.

3. The Testing Laboratory will test and inspect imported and on-site fill and aggregates prior to use. This will consist of sieve analyses to determine the suitability of the materials for the intended use. Once the source has been approved, the materials being delivered to the project will be tested on a regular basis to aid in evaluating their uniformity.
 4. The Testing Laboratory will test and inspect fill and backfill materials, observe operations, will determine optimum use of various on-site soils, and will review and approve method of subcutting unsuitable soils.
 5. The Testing Laboratory will take density tests as backfilling occurs to ensure that material is uniformly compacted to conform with the specifications. Compaction tests will be taken at an interval of at least one for every 100 cubic yards of fill placed in building areas, one for every 100 feet of footing trench backfill, and at least one for every 400 cubic yards of fill placed in pavement areas. Tests will be taken at maximum vertical intervals of 2 feet of fill placed.
 6. The Testing Laboratory will observe proof rolling and will make recommendations for areas that do not pass the proof roll test.
- D. Contractor's Responsibilities:
1. Submit samples of proposed aggregates, sands, backfill, and fill materials to the Testing Laboratory at least three days prior to placement for evaluation of their suitability, and determination of the optimum moisture content and maximum dry density.
 2. Inform the Testing Laboratory representative of proposed earthwork schedule at least 48 hours prior to commencing work. Do not perform earthwork operations which require inspection by the Testing Laboratory unless Testing Laboratory representative is present. Coordinate all earthwork activities with the Testing Laboratory. Allow the Testing Laboratory to test excavation bottoms prior to placing fill.
 3. Provide a fully loaded tandem axle dump truck for proof rolling operations and perform proof rolling in presence of the Testing Laboratory representative. Perform the proof roll test as many times as necessary as determined by the Testing Laboratory representative to the satisfaction of the Testing Laboratory representative.

PART 2 - PRODUCTS

2.1 EARTH MATERIALS

A. Engineered Fill for the Building Pad:

1. Engineered Fill shall be free of rock, cobbles, boulders, stones larger than 2 inch, debris, rubble, lumps, wood, topsoil, organic material, fat clays, soft, frozen, or other unsuitable material.
2. The fill may consist of on-site or imported soils.
 - (a) For fill depths less than 10 feet, on-site soils shall consist of organic free and debris free sandy lean clay, clayey sand, or non-plastic silty sand till soils having a liquid limit less than 35%. ML, CL-ML, or CH soils shall not be used.
 - (b) For fill depths less than 10 feet, imported soils shall consist of organic free and debris free clayey sand (SC) or silty sand (SM) with less than 12% by weight passing the #200 sieve, and having a liquid limit less than 35%. ML, CL-ML, or CH soils shall not be used.
 - (c) For fill depths greater than 10 feet, fill soils shall be imported. Imported soils shall consist of organic free mineral soils, type GP, GW, SP, SW, or SP-SM, modified to 100% passing a 1 inch sieve, and not more than 12% of the particles by weight passing a #200 sieve.
3. The cost of imported soils shall be included in the Bid. No additional costs will be allowed for soil import.

B. Foundation Wall Backfill:

1. Backfill shall meet the specifications for Engineered Fill for the Building Pad unless otherwise noted.
2. The cost of imported soils shall be included in the Bid. No additional costs will be allowed for soil import.

- C. Pavement Area Subgrade:
1. Fill shall be free of rock, cobbles, boulders, stones larger than 2 inches, debris, rubble, lumps, wood, topsoil, organic material, fat clays, soft, frozen, or other unsuitable material.
 2. The fill may consist of on-site or imported soils.
 3. Fill shall consist of organic free and debris free mineral soils, type SP, SP-SM, SM, SC, or CL with 100% passing the 2" sieve and not more than 25% passing the #200 sieve. ML, CL-ML, or CH soils shall not be used.
 4. The cost of imported soils shall be included in the Bid. No additional costs will be allowed for soil import.
- D. Sand Subbase:
1. Imported, free draining, clean sand with 100% passing the 1/2-inch sieve, with less than 50% passing the #40 sieve, and with less than 5% passing the #200 sieve.
- E. Sand Base:
1. Imported, free draining, clean sand with 100% passing the 1/2-inch sieve, with less than 50% passing the #40 sieve, and with less than 5% passing the #200 sieve.
- F. Stabilized Aggregate Base:
1. Stabilized Aggregate Base shall be one of the following products:
 - (a) Limestone product:
 - (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-3, Class 5, modified to be 100% crushed limestone.
 - (b) Igneous Stone product:
 - (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-3, Class 5, modified to be 100% crushed igneous stone.
 - (c) Product containing recycled materials:
 - (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-4, Class 5.
 - (d) Reclaimed product:
 - (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-6, Class 5.
 2. Recycled asphalt products shall not be used within building areas.
- G. General Site Fill:
1. Fill for general areas outside the Building Areas, and Pavement Areas shall be free of rock, boulders, debris, rubble, lumps, wood, topsoil, soft, or frozen material.
 2. The fill may consist of on-site or imported soils.
 3. Fill shall consist of debris free soils with 100% passing a 6 inch sieve. Soils shall have an organic content less than 10%.
 4. The cost of imported soils shall be included in the Bid. No additional costs will be allowed for soil import.
- H. Topsoil:
1. Fertile, friable, natural loam containing a liberal amount of humus and capable of sustaining vigorous plant growth.
 2. Clean and free of subsoil, stones, clods of hard earth, plants or their roots, and other extraneous matter.

3. The pH value of the topsoil shall be between 5.5 and 7.5.
4. Topsoil obtained from stripping the site may be used. Obtain topsoil from naturally well-drained areas.
 - (a) Buried organic soil or organic soil taken from hydric areas shall not be used.
5. Imported topsoil shall meet Mn/DOT 3877.2C Sandy Clay Loam Topsoil Borrow.
6. Screen all topsoil, including on-site stockpiled topsoil and imported topsoil, through a 1-inch screen prior to placement.
7. The cost of imported soils shall be included in the Bid. No additional costs will be allowed for soil import.

2.2 MISCELLANEOUS MATERIALS

A. Foam Insulation:

1. Closed cell foam insulation designed for use in low-temperature applications, highways, airports, and similar.
2. Compressive Strength, ASTM D1621, 100 psi, min.
3. Water Absorption, ASTM C272, 0.1% by volume, max., in 24 hour water immersion.
4. Approved products:
 - (a) Styrofoam™ Brand Highload Extruded Polystyrene (XPS) Foam Insulation, manufactured by DuPont™, phone (833) 338-7668. Find a local supplier at <http://www.dupont.com/building/dealer-locator.html>
 - (b) Or equal.

PART 3 - EXECUTION

3.1 SPECIAL PRECAUTIONS

A. Dewatering

1. Prevent surface water and subsurface / ground water from flowing into excavations and from flooding the site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. Draw down groundwater below the anticipated excavation bottom in advance of excavation. Locate sump pits outside of pavement areas and outside the building pad and its oversize area.
 - (a) Remove sediment and suspended materials from water discharged from pumping, diversion, or similar operations before releasing to Waters of the State. Treat discharge water in accordance with Mn/DOT Spec 3875 Water Treatment. "Waters of the State", as defined in Minn. Stat. § 115.01, subd. 22, includes all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof. Waters of the State include storm sewer, curb and gutter, and pavements.
3. If soils are disturbed or become unstable, remove and replace with drier compacted fill. Alternatively, under favorable weather conditions, scarify, dry and recompact the disturbed or unstable soils back into place.
4. Convey rainwater runoff and water removed from excavations to temporary ponding areas. Establish and maintain temporary drainage ditches and other diversions outside structure and pavement excavation limits. Do not use trench excavations as temporary drainage ditches.

5. Do not place fill or compacted fill in standing water or over softened soils.
 6. Include all dewatering costs in the Bid. No additional costs related to dewatering, including groundwater or precipitation, will be permitted.
- B. Stability of Excavations
1. Sidewalls of all excavations shall comply with the most current OSHA regulations and applicable local codes and ordinances. Shore and brace where adequate sloping is not feasible because of space restrictions or stability of material being excavated.
 2. Maintain slopes of excavations in safe condition until completion of backfilling.
 3. Soils on site are sensitive to moisture and may be easily disturbed by construction traffic. Provide stabilization materials (sand, aggregate, hydrated lime, fly ash, etc.) to stabilize. Limit use of rubber-tired equipment on subgrade. Use smooth bucket backhoes or similar equipment without teeth for excavations. Provide measures to protect subgrade from becoming unstable and maintaining stability of subgrade soils. Pavement subgrade stabilization will be the responsibility of the Earthwork Contractor until the Stabilized Aggregate Base course is installed by the Paving Contractor.
 - (a) Include all costs associated with subgrade stabilization in the Bid.
- C. Cold Weather Protection
1. If site grading and construction takes place during cold weather, implement good winter construction practices. Remove snow, ice, and frozen materials from cut and fill areas prior to additional grading. Do not place fill, footings, or slabs on soils which have frozen or contain frozen material. Do not use frozen soils as fill.
 2. Protect excavation bottoms against freezing when atmospheric temperature is less than 35° F.

3.2 LAYOUT

- A. Hire the services of a utility locator company to locate all privately owned utilities that may be disturbed by construction operations. Obtain any record information from the Owner related to existing utilities to aid in the location of all existing utilities.
- B. Employ and pay for the services of a registered Engineer or Land Surveyor to stake and tape limits of construction, accurately locate the site boundaries, pavements, walks, utilities, buildings, and elevations, and establish temporary benchmarks for use during construction. Refer to Section 01 71 23 - Field Engineering.
- C. Applicable portions of the building, parking lots, and drive areas shall be frequently staked, with horizontal and vertical reference points, during excavation and backfilling operations to facilitate orientation of the Testing Laboratory representative.

3.3 STOCKPILE MANAGEMENT

- A. Stockpiles shall not be placed in surface waters of the state, including surface conveyances such as curb and gutter, swales, or ditches.
- B. Install silt fence at the base of stockpiles (full perimeter).
- C. Stabilize stockpiles immediately for areas that will not resume construction for a duration of 7 calendar days as specified for Stabilization Practices in Section 31 25 00 Erosion and Sedimentation Control.
- D. Stockpile management is not required for clean aggregate stockpiles.

3.4 TEMPORARY CONSTRUCTION PARKING, AND LAYDOWN AREAS

- A. The exact location of the haul roads, temporary construction parking, and laydown areas may be adjusted in the field to avoid future construction. The Construction Manager will review and approve adjustments.
- B. Install and maintain haul roads, temporary construction parking and laydown areas. Continue maintenance through construction.

- C. Remove the haul roads, temporary construction parking, and laydown areas outside of the building and paved areas. Complete rough grading and topsoil placement.

3.5

EXCAVATIONS

- A. Excavate to the lines, grades and slopes shown on the Drawings.
- B. Provide temporary drainage where construction interferes with existing drainage.
- C. Excavations over 20 feet in depth require an Engineer to evaluate trench slope stability. An OSHA-approved qualified person, employed by the Contractor, shall review the soil classification in the field. Excavations shall comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." Costs for engineering evaluations and resulting excavation operations to comply with this requirement shall be included in the bid and no additional compensation will be permitted.
- D. Excavate and remove all vegetation, topsoil, fill material, unsuitable soils, very soft to stiff clays, very loose to medium dense sands, and soils with organic content within Building Areas including oversize areas. Remove any soft soils which are unsuitable for loads as directed by the Testing Laboratory representative. No proposed slabs or similar loads shall bear on soil with questionable bearing capacity.
- E. Excavations within a zone horizontally outward a minimum 3 feet from the outside of the existing footings and slabs and extending at a 1 ½ to 1 horizontal to vertical slope outward and downward from the bottom of the existing foundation will require support of existing foundations.
 - 1. Provide adequate shoring, bracing, and underpinning of the existing building for construction of the building pad. Under this contract, stability of the existing building will be the responsibility of this Contractor. All shoring, bracing, and underpinning shall be reviewed and approved by the Geotechnical Engineer or it's appointed Testing Laboratory representative, employed by the Owner, during construction.
- F. Excavate and remove all vegetation, topsoil, fill material, unsuitable soils, very soft to stiff clays, very loose to medium dense sands, and soils with organic content within the upper three (3) feet of final subgrade elevation of all proposed pavement areas, including pavement oversize areas. Remove all organic soils and vegetation under pavement areas. Remove any soft soils which are unsuitable for loads as directed by the Testing Laboratory representative.
- G. Excavate and remove all vegetation, topsoil, soft or unstable soils, and soils with organic content within Athletic Field Areas.
- H. Excavation shall extend a minimum of six inches below elevation of observed unsuitable soil. Extend excavations in wet or fine-grained soils to remove disturbed bottom soils.
- I. Oversize building excavations at least three feet beyond the edge of the wall plus 1 foot horizontally for each foot of excavation below the bottoms of the footings (1:1 oversizing).
- J. Oversize pavement area excavations one foot beyond the outside edges of the back of curb (or edge of pavement, where no curbing is proposed), plus 1 foot horizontally for each foot of excavation below the pavement (1:1 oversizing).
- K. Construct the building pad to a uniform subgrade elevation. Excavate for footings only after the entire building pad has been tested and approved.
- L. In Building Areas, , and Pavement Areas, following excavation to subgrade elevation, prepare the subgrade by scarifying subgrade soils to a minimum depth of 12", moisture conditioning soils to within the specified variance from optimum moisture content, and compacting to the specified density. Disc and dry soils as required to accomplish the specified moisture content. Remove and replace soils that cannot be stabilized, as determined by the Geotechnical Engineer or it's appointed Testing Laboratory representative, in accordance with Paragraph 3.12 of this Section. In pavement areas, following subgrade preparation and prior to placement of fill, proof roll the subgrade as specified herein for the Proof Roll.

3.6 FOOTING AND FOUNDATION EXCAVATION, BACKFILLING AND COMPACTING

A. Disposition of Materials

1. Material Stockpiles

- (a) Stockpile excavated material which is suitable for reuse as backfill.
- (b) Locate stockpiles to avoid impairment of later operations by other contractors. Consult with other trades prior to stockpiling.

2. Surplus Materials

- (a) Remove unsuitable materials from the site. Export soils at no additional cost to the Owner.
- (b) Remove excess and surplus materials from the site. Export soils at no additional cost to the Owner.

3. General Method of Procedure

- (a) Construct the building pad to a uniform subgrade elevation. Excavate for footings only after the entire building pad has been tested and approved.
- (b) Trench or hand excavate for footings.
- (c) Prior to placing forms or reinforcement, surface compact the exposed footing subgrade to provide a uniform bearing capacity.
- (d) The Testing Laboratory representative will inspect footing trenches to determine that actual soil bearing values meet the requirements specified herein and that no unsuitable, unstable or inadequate soils exist beneath the proposed footings.
- (e) Allow for pouring of concrete footings and laying up of foundation walls.
- (f) Shore foundation walls or backfill and compact with soils on both sides of foundation walls simultaneously.
- (g) Backfill and compact with specified material to building pad subgrade elevation.
- (h) Footing excavation shall progress with the schedule of footing installation. Do not excavate footing trenches beyond the footing installation limits for the day.

B. Unauthorized Excavation

- 1. Where an excavation is made beyond the footing subgrade elevation, do not place fill soils without specific approval by the Testing Laboratory representative.
- 2. If an excavation is made too deep, fill the excess excavation with concrete to footing subgrade elevation. Costs associated with additional concrete will be the Contractor's expense.

C. Compaction and Backfill

- 1. Prior to placing forms or reinforcement, surface compact the exposed footing subgrade to a minimum 98% of the standard Proctor density (ASTM D 698), to the satisfaction of the Testing Laboratory representative, to ensure a uniform bearing capacity.
- 2. Surface prepare and compact soils in areas where soil does not meet the specified density. Footings shall not rest on unsuitable or unstable soil.
- 3. Foundation Wall Backfill:
 - (a) Deposit approved fill against foundation walls in uniform layers, evenly on each side of the wall, in lifts not exceeding 4-6 inches loose thickness.
- 4. Use manually operated vibratory plate compactors to compact fill and backfill placed within five feet from building foundation walls or retaining walls. Self-propelled compactors shall only be used outside of this five foot limit.

3.7

BUILDING PAD BASE

- A. Immediately prior to building floor construction, construct the building pad base.
- B. Coordinate building pad base construction with vapor barrier installation.
- C. Uniformly grade all ruts and ridges in the building pad subgrade prior to installing the building pad base to provide uniform material thickness.
- D. Compact building pad base materials to 100% standard Proctor density (ASTM D 698).

3.8

FOAM INSULATION

- A. Fine grade Sand Base to uniform surface prior to placing foam sheets. Grading tolerance for Sand Base shall not exceed ¼ inch.
- B. Abut ends of foam sheets together. Limit gaps between foam sheets to not more than ½ inch.
- C. Uniformly spread remaining Sand Base material over the foam sheets without displacing individual foam sheets. Do not drive power operated equipment over foam. Push materials over foam or spread with backhoe or similar equipment. Hand rake Sand Base surface for final grade prior to concrete walk or slab construction.
- D. Protect foam during construction.
- E. Remove and replace foam sheets that become cracked or damaged.

3.9

COMPACTED FILL

- A. Prior to placement of fill materials, the Testing Laboratory representative must test, inspect and approve the bottom of each excavation. Do not proceed with fill placement until the subgrade has been prepared, and the Testing Laboratory has approved the subgrade.
- B. Before placing fill on a slope steeper than 4 horizontally to 1 vertically (4:1), perform one of the two following options:
 - 1. Flatten the existing slope to the extent that it will not be steeper than 4 to 1; or
 - 2. Construct steps in the slope, with the back surface being as nearly vertical as practicable and with the horizontal cuts being made as close together as the slope permits, but with no step being less than ten feet in width.
- C. Do not place fill on frozen ground or continue filling operations when the fill material is at risk for freezing.
- D. Do not place fill shall in standing water, in wet conditions, or over softened soils.
- E. Break up or disc soil clumps or slabs to allow for proper compaction. Discing and compaction operations shall be approved by the Testing Laboratory representative.
- F. Engineered Fill for the Building Pad, and Pavement Area Subgrade: Deposit approved fill in uniform layers not exceeding 8 inches loose thickness, dependent upon review by the Testing Laboratory representative. Compact each layer with approved methods and equipment that will densify the entire lift. Place fill within the specified moisture content range as approved by the Testing Laboratory representative.
- G. Stabilized aggregate base on the building pad shall be coordinated with work by other trades.
- H. General Site Fill: Deposit approved fill in uniform layers not exceeding 12 inches loose thickness, dependent upon review by the Testing Laboratory representative. Place fill within the specified moisture content range as approved by the Testing Laboratory representative.
- I. The fill material, when being compacted, shall contain the moisture content necessary for the required compaction as designated by the Testing Laboratory representative. The moisture shall be uniform throughout each layer.
- J. Use manually operated vibratory plate compactors within five feet from building foundation walls or retaining walls. Use self-propelled compactors outside of this five foot limit.

- K. Spread, disc, farm, or otherwise dry wet soils as required to achieve a uniform moisture content throughout the soil. Moisten soils when too dry to achieve the required moisture content.
- L. Scarify, remove, recompact or otherwise rectify all soft or yielding areas resulting from construction operations, precipitation, or other sources at no additional cost to the Owner.
- M. If there are areas which cannot be compacted or stabilized, scarify the upper 24 inches to a moisture content not more than 1 percent above optimum, and compact to a minimum of 100% standard Proctor density (ASTM D 698). If after scarifying the areas still cannot be compacted or stabilized, the unstable materials shall be excavated to a depth of 36 inches and be replaced with materials which can be compacted.

3.10 COMPACTION DENSITY REQUIREMENTS

- A. Relative Compaction and Moisture Content Variance from Optimum for fill and backfill shall meet the following Table. Relative compaction values listed are minimum values. Do not exceed the listed variances for Optimal Moisture Content.

Earth Material	Relative Compaction, Minimum Percent, standard Proctor density (ASTM D 698)	Moisture Content Variance from Optimum, percentage
Engineered Fill for the Building Pad, soils less than 12% passing the #200 sieve	98%	-2% to +2%
Stabilized Aggregate Base on the Building Pad	98%	-3% to +3%
Pavement Area Subgrade – more than 3 feet below subgrade	95%	-3% to +3%
Pavement Area Subgrade –the upper 3 feet of subgrade, soils more than 12% passing the #200 sieve	100%	-1% to +3%
Pavement Area Subgrade –the upper 3 feet of subgrade, soils less than 12% passing the #200 sieve	100%	-3% to +3%
General Site Fill	90%	-4% to +5%

- B. In areas where tests do not meet the values listed in the Table above, provide additional compaction or preparation as needed, or remove and recompact soils to meet the specified values. Reworking of soils will be at the Contractor's expense. Each lift must be approved before commencing with the next succeeding lift.

3.11 ROUGH GRADING

- A. The proposed contours and spot elevations shown on the Drawings indicate proposed finish grades. Grade to subgrade elevations, except for general landscape areas which shall be graded to finish grade with specified topsoil.
- B. The Contractor will be solely responsible for determining quantities of cut, fill and waste materials to be handled, and for the amount of grading to be done in order to completely perform all work indicated on the Drawings.
- C. Import suitable material and export unsuitable, excess, or waste material, as required. Include this work in the Bid. No additional costs will be allowed for importing or exporting soils.

- D. Mining of soils for any purpose other than to construct the proposed improvements is prohibited. Trench borrowing, mining, or other over-excavations within Building Areas, or Pavement Areas is prohibited.
- E. Provide surfaces free of debris and building construction materials. Remove stones, rocks, debris, and similar undesirable material over 1" in diameter. Remove weeds, root masses, sod / vegetation clumps, branches, vegetation, and other deleterious materials.
- F. Complete rough grading by blading to reasonably smooth contours with neat, uniform transitions and slopes. Ease new grades into surrounding existing grades without awkward or abrupt transitions.
- G. Grade all surfaces such that they will not hold water. Grade all areas to drain.
- H. Rough Grade Tolerances:
 - 1. Unpaved areas outside buildings: Surfaces shall not vary by more than 0.15' above or below finish grade elevations.
 - 2. Building and paved areas: Surfaces shall not vary by more than 0.10' above or below subgrade elevations.
- I. Uniformly grade the subgrade to coincide with the proposed surface grades to ensure a consistent depth of topsoil, or pavement section.
- J. In landscape areas, backfill all curbing with topsoil flush with the top of curb. Compact soils and subsoils behind curb backs to prevent settlement behind the curb.
- K. In landscape areas absent of curbing, grade topsoil flush with the walk or pavement surface on the up-gradient side, and hold down topsoil one inch below the walk or pavement surface on the down-gradient side.
- L. Protect rough graded areas from construction traffic and erosion. Repair and re-establish grades and tolerances in settled, eroded or rutted areas to specified tolerances. No additional compensation will be permitted for protection or repairs.

3.12 SUBGRADE PREPARATION AND FINISH GRADING OF BUILDING AREAS, AND PAVEMENT AREAS

- A. Grade and compact the subgrade for its entirety such that, at the time the, sand subbase, sand base, stabilized aggregate base or topsoil is placed, the specified density, moisture content, and stability in the subgrade are met.
- B. Subgrade Preparation: Prepare the subgrade by scarifying subgrade soils to a minimum depth of 12", moisture conditioning soils to within the specified variance from optimum moisture content, and compacting to the specified density.
 - 1. Spread, disc, farm, or otherwise dry wet soils as required to achieve a uniform moisture content throughout the soil. Moisten soils when too dry to achieve the required moisture content.
 - 2. Scarify, remove, recompact, or otherwise rectify all soft, yielding, or unstable areas resulting from construction operations, rain, groundwater, or other sources at no additional cost to the Owner. Include all costs for moisture conditioning in the Bid. No additional costs for moisture conditioning will be permitted.
 - 3. If there are areas which cannot be compacted or stabilized, scarify the upper 24 inches to a moisture content not more than 1 percent above optimum, and compact to a minimum of 100% standard Proctor density (ASTM D 698). If after scarifying the areas still cannot be compacted or stabilized, the unstable materials shall be excavated to a depth of 36 inches and be replaced with materials which can be compacted.
- C. Uniformly grade the subgrade to coincide with the proposed surface grades. Blade subgrade to a smooth and uniform surface prior to proof roll.

D. Subgrade Finish Grade Tolerances:

1. Building Areas: Surfaces shall not vary by more than 0.06' (¾ inch) above or below subgrade elevations.
2. Pavement Areas: Surfaces shall not vary by more than 0.06' (¾ inch) above or below subgrade elevations.

E. Proof Roll for Pavement Areas:

1. Conduct the Proof Roll on the pavement subgrade in accordance with Mn/DOT 2111 following subgrade preparation and finish grading described herein.
2. Notify the Testing Laboratory representative and Engineer at least 48 hours in advance of the desired Proof Roll schedule.
3. Conduct the Proof Roll only after the Testing Laboratory representative agrees that the subgrade has been properly prepared and is ready for the Proof Roll test.
4. Conduct the Proof Roll in the presence of the Testing Laboratory representative. The Civil Engineer may observe the Proof Roll but their attendance is not required.
5. Notify the Paving Contractor of the Proof Roll schedule and invite the Paving Contractor to witness the Proof Roll test. The Paving Contractor is not required to attend the test.
6. Conduct the Proof Roll immediately, and not more than 48 hours, prior to placement of the sand subbase, or stabilized aggregate base. If precipitation falls on the subgrade between initial Proof Roll and placement of subsequent work, conduct the Proof Roll again.
7. Furnish and use a fully loaded tandem rear axle dump truck for the Proof Roll.
8. Drive the dump truck between 2 and 4 miles per hour in straight lines across the subgrade. Succeeding passes of the truck and the resulting unrolled areas between the tire paths shall not be wider than 42 inches.
9. Proof Roll Tolerance: Maximum yield of one inch depth of the tire rut.
10. Yielding more than the specified Tolerance will indicate a failed test. Mark the failed areas with paint. The Testing Laboratory representative must concur with the marked areas and their limits.
11. Rework the failed areas in accordance with the subgrade preparation and finish grading requirements described herein. No additional costs for reworking the failed areas will be permitted.
12. Areas shall be reworked and retested to the satisfaction of the Testing Laboratory representative.
13. The Proof Roll test will be considered passing after the entire subgrade meets the specified Tolerance as determined by the Testing Laboratory representative.

3.13 FINISH GRADING OF TOPSOIL

- A. Screen all topsoil, including on-site stockpiled topsoil and imported topsoil, through a 1-inch screen prior to placement.
- B. Spread topsoil to a uniform, minimum 6 inch depth after compaction, over all turfgrass and landscape areas within the grading limits. Spread topsoil after construction of pavements and walks. Complete site grading and bring turfgrass and landscape areas to finish elevations.
- C. General Topsoil Areas:
 1. Blade smooth with light weight grading equipment with large, wide tires, to maintain grade uniformity without over-compacting the topsoil.

D. Compaction:

1. Do not perform direct compaction efforts on topsoil. Use light weight grading equipment with large, wide tires that will not over compact the topsoil.
2. If over compaction occurs, defined as more than 90% standard Proctor density (ASTM D 698), scarify the topsoil to full depth and regrade.

E. Finish Grade Tolerances:

1. General Topsoil Areas: Surfaces shall not vary by more than 0.08' (1 inch) above or below finish grade elevations.

3.14 RESTORATION AND CLEANUP

- A. Remove all construction materials and stockpiles from the site.
- B. Provide final sweeping of all paved surface, existing and proposed, at project completion.

3.15 AS-BUILT SURVEY

- A. Submit an as-built survey.
- B. Refer to Section 01 71 23 - Field Engineering for requirements.

END OF SECTION 31 00 00

SECTION 31 23 33

TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Trenching, placement, backfilling, and compacting for the proposed utility systems indicated on the Drawings.
- B. Construction Staking
 - 1. Retain the services of a licensed Land Surveyor or Professional Engineer for construction staking. Refer to Section 01 71 23 Field Engineering.
- C. Work under this Section is affected by an Alternate Bid. Refer to Section 01 23 00 - Description of Alternates.

1.2 QUALITY ASSURANCE

- A. Retain the services of a licensed Land Surveyor or Professional Engineer for construction staking. Refer to Section 01 71 23 Field Engineering.
- B. The Owner will employ and pay for the services of a soil testing and inspection service (Geotechnical Engineer or qualified representative) for quality control testing of the backfilling and compacting operations.
- C. A qualified representative from the Geotechnical Engineer's office must be present during stripping, excavation, backfilling, and compaction operations. Services which will be performed by the testing laboratory are as follows:
 - 1. Perform compaction tests every 100 feet of trench excavation, at maximum vertical intervals of 2 feet.

1.3 SUBMITTALS

- A. Submit information in accordance with Section 01 33 00 – Submittal Procedures.

1.4 SITE CONDITIONS

- A. Install barricades as part of this work and post with warning lights.
- B. Maintain benchmarks, monuments, and other reference points. If disturbed or destroyed, replace or relocate by employing a Registered Land Surveyor at the Contractor's expense.
- C. Protect existing trees and vegetation, equipment, pavements, curbing, facilities, utilities, and structures which are to remain and are in the area where work will be performed. Repair or replace existing property which is to remain that is damaged by the work, to the Owner's satisfaction, and at no additional cost to the Owner.
- D. Existing Utilities
 - 1. Contact Gopher State One Call before starting construction in a given area, requesting utility locations in the field.
 - 2. The locations of overhead and underground utilities are shown on the Plans. Verify the accuracy and completeness of noted locations.

3. Field locate all power lines, communication lines, ducts, culverts, conduits, pipes, and structures which will be affected by excavation and take steps necessary to support, protect, remove or relocate said structures by means acceptable to the owners of the structures involved. To avoid delay, coordinate excavating activities with the appropriate utility companies.
4. Where culverts or other piping are damaged during construction, replace with new pipe at the Contractor's expense. Replacement with damaged material will not be permitted.
5. All costs of investigation and any necessary protection, support, removal, relocation, or replacement of existing utilities shall be included in the bid with no additional compensation being permitted.
6. Verify all utility locations and give 48 hour notice to all utility companies prior to commencement of excavating operations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pipe Stabilization Materials

1. Sand / Gravel Material

- (a) Shall be used for pipe bedding and/or trench backfill wherever peat, clay or other unsuitable bearing material is encountered as determined by the Owner's testing laboratory.
- (b) Shall consist of imported, clean, granular material with gravel larger than 1" and not more than 50% passing the No. 40 sieve.
- (c) Shall be placed to a depth as determined by the testing laboratory, with a minimum depth of 6" below the bottom of the pipe and extending at least 1 foot beyond the sides of the pipe and 1 foot above the pipe.

2. Binder Stone

- (a) Shall be crushed stone, 1 ½" clear gradation, with no particles larger than 3".

B. Pipe Bedding

1. Shall consist of on-site or imported, free draining, uniformly graded clean sand with 100% passing the ½ inch sieve, with less than 5% passing the #200 sieve and less than 50% passing the #40 sieve.

C. Backfill above Embedment Zone

1. Shall meet the requirements identified in Section 31 00 00 Earthwork for the respective locations on site unless noted otherwise. Utilize materials specified for Pavement Area Subgrade in paved areas. Utilize materials specified General Site Fill for areas outside paved areas.

PART 3 - EXECUTION

3.1 COLD WEATHER OPERATION

- A. No pipe shall be placed when the temperature falls below 30 degrees Fahrenheit without approval of the Engineer.

3.2 OFF-SITE DISPOSAL

- A. Dispose of all asphalt, concrete, and other undesirable materials or debris to an approved landfill located outside the project limits.
- B. All costs for these operations shall be included in the bid with no additional compensation being permitted.

3.3

CLASSIFICATION AND DISPOSITION OF MATERIALS

- A. Excavated materials classified by the Geotechnical Engineer as rock will be paid for as an Extra Work Item. Excavation, backfilling and compacting of all other materials encountered in the work shall be included in the bid. Additional compensation by the Extra Work Item will not apply to removing rock fragments less than one cubic yard in volume, wood, debris, boulders, stone, masonry, concrete, or similar. Additional compensation by the Extra Work Item will not apply to materials that can be moved with power operated excavators without resorting to drilling and blasting.
- B. Rock excavation is defined to include:
 - 1. All hard, solid rock in ledge formation, bedded deposits, and unstratified masses;
 - 2. All-natural conglomerate deposits so firmly cemented as to present all the characteristics of solid rock;
 - 3. The above defined materials and any boulder, stone, masonry, or concrete fragments exceeding one cubic yard in volume.
 - 4. Materials such as shale, hard pan, weathered rock, soft rock, or disintegrated rock which can be dislodged with a hand pick or removed with a power operated excavator or ripper will not be classified as rock excavation.
- C. The testing laboratory will classify excavated materials as being either suitable or unsuitable for backfill or other specified use, subject to requirements of Section 31 00 00 Earthwork. Reserve suitable materials for use to the extent needed. Segregate granular materials and topsoil from other materials during excavation and stockpiling to permit best use of the available materials for backfilling.
 - 1. Include all costs for material handling, as described above, in the bid. No additional compensation will be permitted.
- D. Store all excavated materials reserved for backfill or other use on the project at locations that minimize inconvenience to construction operations, public travel, adjacent properties, and other special interests. Do not place material close to the edges of the excavations to create hazardous conditions or block emergency service access.
- E. Remove excess or unsuitable materials from the project site. Export materials as required at no additional costs to the Owner. Include export costs in the bid.

3.4

SHEETING AND BRACING

- A. To prevent the disturbing or settlement of adjacent road surfaces, foundations, structures, railroad tracks or other improvements, furnish and install all sheeting and bracing necessary to provide good working conditions and prevent damage and delay to the work. Determine the strength and sufficiency of all sheeting and bracing and employ a registered engineer for this determination.
- B. Bracing shall be so arranged as to provide ample working space and so as not to interfere with the work and so as not to place any strain on the structures being constructed until such structures are of ample strength to withstand such strain.
 - 1. All sheeting and bracing, unless otherwise specified or ordered to be left in place by the Engineer, shall be removed from the site. Include these costs in the bid.
- C. Any damage to work under this Contract or to adjacent structures or property caused by settlement, water or earth pressures, slides, cave-ins, or other causes due to failure or lack of sheeting and bracing or improper bracing, through negligence or fault of the Contractor in any manner, shall be repaired by the Contractor without delay.

3.5 TRENCHING

- A. Excavate to depth and width necessary for utility construction. Excavation width shall not exceed the outside diameter of pipe plus 24 inches.
- B. Dig the trench in advance of the pipe installation. All trenches shall be refilled or barricaded at the end of each day. Trenches within any right-of-way shall be completely backfilled at the end of each day. The sides of the trenches shall be sloped and/or braced, and the trenches drained so that workers can work safely and efficiently.
- C. Segregate all unsuitable materials from suitable materials.
- D. During utility placement, take precautions to ensure that all trenches and excavated trench materials are maintained in a dry and stable condition.
- E. Maintain dry and stable conditions during utility placement or trench backfilling work. Postpone work until these conditions are met.
- F. Ground water encountered during trench excavation, utility placement, and trench backfilling shall be removed completely for the duration of utility placement and trench backfilling. Removal of ground water shall be accomplished by acceptable means. Do not permit the backfill material to absorb moisture due to careless workmanship during water removal. Specifically, when native soil materials are to be used for trench backfill, bucket removal of water with native soil materials, thereby creating a highly elevated soil moisture content, will be prohibited.
- G. Removal of ground water and replacement of backfill material containing excessive moisture shall be the Contractor's responsibility with no additional compensation being permitted. Replacement material must be approved by the testing laboratory prior to its use.

3.6 INSTALLING PIPE AND APPURTENANCES

- A. Pipe and other materials shall be unloaded and distributed on the job in an acceptable manner. In no case shall materials be thrown or dumped from the truck.
- B. All pipe materials shall be carefully lowered into trench, piece by piece, by means of a derrick, ropes or other suitable tools or equipment, in such a manner as to prevent damage to materials and protective coatings and lining. Under no circumstances shall pipe materials be dumped into the trench. Damaged coatings and linings shall be repaired or the pipe shall be replaced.
- C. Provide suitable temporary channels for surface water that may flow along or across the area of work. Excavated material shall be placed on one side of the trench. No material shall be placed so as to obstruct any existing drainage system.
- D. Comply with dewatering requirements noted in Section 31 00 00 Earthwork.

3.7 PIPE BEDDING

- A. All pipe shall be laid upon sound, granular soil, min. 6" depth, cut true and even so that the barrel of the pipe will have a bearing for its full length. Bell holes shall be dug at the ends of each length of pipe to permit proper jointing.
- B. If unstable or unsuitable soils are encountered, as defined in Section 31 00 00 Earthwork, immediately notify the testing laboratory. Unstable material shall be replaced with stabilization material as instructed by the testing laboratory. Costs for additional excavation or stabilization material shall be included in the bid with no additional compensation being permitted.

3.8 BACKFILLING PROCEDURES

- A. All trench areas shall be backfilled to existing grade or to proposed subgrade. Proceed with backfilling without delay as the installation is made.
- B. Granular material, free from rocks, boulders, organics or frozen material shall be deposited in the trench simultaneously on both sides of the pipe for the full width of the trench to a minimum height of twelve (12) inches above the top of the pipe. The material shall be shovel placed and hand tamped to fill completely all spaces under and adjacent to the pipe. If the pipe size is larger than 12", the granular backfill from the bottom of the trench to 12" above the top of the pipe shall be placed by either hand or mechanical methods in two lifts. The first lift, from the trench bottom to the pipe springline, and the second lift, shall be compacted with a minimum of 2 passes with an approved type of mechanical tamping compactor.
- C. If suitable granular material for this portion of the backfill is not available from the trench excavation, as determined by the Testing Laboratory representative, provide and place sand-gravel material as described in this Section.
- D. Succeeding layers of backfill from twelve (12) inches above the pipe to subgrade may contain coarse materials, but shall be free from rock, frozen materials, concrete, asphalt, wood, roots, stumps, sod, rubbish, and other similar materials, whose presence in the backfill, in the opinion of the Testing Laboratory representative, may cause excessive settlement of the trench or damage to the pipe.
- E. If, in the opinion of the testing laboratory, the native trench material is unsuitable for any portion of the trench backfill, it shall be considered surplus material and disposal shall be as previously described. During excavation operations, make a reasonable attempt to segregate all undesirable materials from suitable materials. Any additional suitable material needed for backfilling shall be furnished and installed at no additional cost to the Contract.

3.9 COMPACTION REQUIREMENTS

- A. Trench backfill in pavement areas shall be placed in lifts no greater than 8 inches thick, at a moisture content within 3 percentage points of optimum, and compacted to a relative density of at least 95% of Standard Proctor dry density (ASTM D 698) for soils deeper than 3 feet from subgrade elevation, and compacted to a relative density of at least 100% of Standard Proctor dry density (ASTM D 698) for soils in the upper 3 feet of subgrade.
- B. Trench backfill compaction within five feet of utility structures shall be accomplished with walk-behind compaction equipment. Within 5 feet of utility structures, backfill and compaction with power operated vibratory equipment will not be allowed.

3.10 MISCELLANEOUS RESTORATION

- A. Restore, to a condition equal to or better than existing, all other structures not specifically mentioned above which are disturbed because of this construction including fences, clothes posts, mailboxes, yard lights, entrance markers, etc. There will be no additional compensation for this miscellaneous restoration.

3.11 SETTLEMENT

- A. The Contractor will be responsible for any settlement of backfill which may occur within two years of project Substantial Completion.
- B. Make, or provide for, all repairs and replacements to improvements affected by settlement of backfill within 30 days after notice from the Engineer or Architect.

END OF SECTION 31 23 33

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Install and maintain all erosion and sedimentation control devices.
 - 2. Additional erosion and sedimentation control devices as may be required by Local or State regulations.
 - 3. Construction and continual maintenance of rock construction entrances as detailed on the Drawings and removal upon work completion. Maintenance shall continue until total project completion. Work includes removal of these temporary facilities and restoration back to existing conditions for areas outside the construction limits.
 - 4. Sweeping of paved areas.
 - 5. Temporary stabilization of disturbed areas and stockpiles.
 - 6. Removal of all erosion and sedimentation devices, and restoration from removal of these devices.

1.2 SUBMITTALS

- A. Submit information and shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information:
 - 1. Silt Fence
 - 2. Inlet Protection Devices
 - 3. Rock Construction Entrance
- C. Submit a proposed schedule for implementation of erosion and sedimentation control devices.
- D. Submit maintenance Logs on a weekly basis.

1.3 QUALITY ASSURANCE

- A. Construction activities shall not commence until all required permits are obtained.
- B. Erosion and sedimentation control devices shall be inspected and approved by local authorities prior to commencement of construction operations.
- C. Provide a knowledgeable and responsible person to implement and maintain inspection logs and provide inspections as required herein.
- D. All erosion and sedimentation control devices shall remain in place until permanent stabilization has been accomplished including, but not limited to, 80% turf establishment and the first lift of pavement.

1.4 SITE CONDITIONS

- A. Protect adjacent properties and water resources from erosion and sedimentation damage throughout Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Silt Fence

1. Fabric shall:

- (a) be uniform in texture
- (b) be uniform in appearance
- (c) contain no defects, flaws, or tears affecting the physical properties
- (d) contain UV inhibitors and stabilizers providing a minimum service life of at least 2 years during outdoor exposure
- (e) meet the requirements indicated in the table below:

Silt Fence Type	Width <i>in</i>	Grab Tensile (Machine Direction) <i>lb*</i>	Apparent Opening Size 	UV Stability 500 H % ‡	Minimum Flow Rates <i>gpm/sq ft</i>
Machine Sliced (MS), Hand Installed (HI) Woven Geotextile §	36	130	No. 30 Sieve	70	100
Pre-Assembled (PA) Woven Geotextile	36	130	No. 30 Sieve	70	100
Values in Table are Minimum Average Roll Values (MARV) * ASTM 4632 ASTM 4751 Maximum Average Roll Value ‡ ASTM 4355 § Provide MS, HI Woven Geotextile with Monofilament in Both Directions. Do Not Make Substitutions.					

2. Fasteners shall have a tensile strength of at least 50 lb.

- (a) For MS and HI applications, provide plastic ties to attach geotextile materials to posts.

3. Posts

- (a) MS and HI application steel posts shall meet the following:

- (1) Type: T-post
- (2) Weight: 0.95 lb/ft
- (3) Length: ≥5.0 ft
- (4) Embedment: ≥24 in
- (5) Post spacing: ≤6.0 ft

(b) PA application wood posts shall meet the following:

- (1) Type: Hardwood
- (2) Size: ≥ 2 in x 2 in
- (3) Length: ≥ 4.0 ft
- (4) Embedment: ≥ 18 in
- (5) Post spacing: < 5.0 ft

B. Inlet Protection Devices

1. Shall be sized specifically for each structure and casting.
2. Provide all materials as recommended by the manufacturer for complete installation.
3. Approved Products:
 - (a) Road Drain "Top Slab", Manufactured by Wimco
 - (b) Road Drain "Curb & Gutter", Manufactured by Wimco
 - (c) Infrasafer[®] "Sediment Control Barrier", Manufactured by Royal Environmental Systems, Inc.
 - (d) Infrasafer[®] "Debris Collection Device", Manufactured by Royal Environmental Systems, Inc.
 - (e) Infrasafer[®] "Culvert Inlet Protector", Manufactured by Royal Environmental Systems, Inc.
 - (f) Dandy Sack[®], Manufactured by Dandy Products, Inc.
 - (g) Dandy Curb Sack[®], Manufactured by Dandy Products, Inc.
 - (h) Or approved equal.

C. Rock Construction Entrances

1. Washed river rock, 2-3" in diameter. Geotextile fabric shall meet requirements of Mn/DOT 3733 Type 7
2. Grizzly Trackout Control Device
3. Or approved equal

PART 3 - EXECUTION

3.1 PREPARATION

- A. Review the Erosion and Sediment Control Plans.
- B. Notify the Engineer of deficiencies or changes in the Erosion and Sediment Control Plans required by current site conditions. Revisions to the plans will be made as determined by the Engineer.

3.2 PHASING OF THE WORK

- A. Schedule and conduct operations so as to minimize erosion of soils and to prevent sedimentation of Surface Waters of the State. Surface Waters include curb and gutter, pavements, storm sewer, swales, stormwater treatment areas, or other similar storm water conveyance means.
- B. Construction of drainage facilities, turf establishment items, and other contract Work which will contribute to the control of erosion and sedimentation shall be carried out concurrently with earthwork operations or as soon thereafter as practicable.

3.3 LIMITATION OF WORK AREA

- A. The Engineer will have authority to limit the surface area of erodible soil that can be exposed to possible erosion at any one time, without having the permanent erosion control features completed and operative.
- B. Incorporate the erosion control features into the Work at the earliest practicable time and provide all additional temporary control measures as may be needed to correct conditions developing during construction.

3.4 INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES

- A. Silt Fence
 - 1. Install per applicable portions of Mn/DOT Standard Specification 2573.3 B.
- B. Inlet Protection Devices
 - 1. Install per Mn/DOT Standard Specification 2573.3 M and in accordance with manufacturer's recommendations.
- C. Rock Construction Entrance
 - 1. Construct rock construction entrance drives where indicated on the Drawings and as detailed, or in accordance with manufacturer's recommendations.

3.5 STABILIZATION PRACTICES

- A. Stabilize denuded areas and stockpiles within the following number of days of last construction activity in all areas:
 - 1. All areas shall be stabilized within 7 days.
 - 2. Temporary soil stockpiles shall be treated with appropriate erosion control measure, including silt fence and temporary seeding, when stockpiles are left inactive for periods longer than 7 days.
- B. Temporary Stabilization:
 - 1. Stockpiles and disturbed portions of the site where construction activity temporarily ceases for the time frames noted above shall be stabilized with a temporary seed and mulch according to the following:
 - (a) All areas of bare soil exposed to possible erosion shall be shaped to drain with minimum potential for erosion.
 - (b) The disturbed areas shall then be seeded with perennial ryegrass and annual wheat at a rate of 10 pounds per acre (0.25 lbs./1,000 sq. ft.) and 20 pounds per acre (0.50 lbs./1,000 sq. ft.) respectively, then and covered with hydromulch (Mn/DOT 3882, Type 5) at the rate of 1,500 pounds per acre.

3.6 MAINTENANCE

- A. Maintenance of erosion and sedimentation control devices shall meet the minimum requirements of this specification.
- B. Provide continual maintenance on all erosion and sedimentation control devices as identified herein. Repairs or replacements to all erosion and sedimentation control devices shall occur within 24 hours.
- C. Maintain these devices throughout their temporary life and remove these devices when so approved by the Engineer.
- D. Maintenance and removal costs shall be included in the bid. No additional costs will be permitted.

E. Silt Fence

1. Shall be cleaned when sediment reaches 1/3 the height of the fence.
2. Silt fence which has washed out shall be reinforced with additional stakes and backed by snow fence to reduce the possibility of future washouts.

F. Inlet Protection Devices

1. Shall be cleaned when device becomes at most 1/3 full or as required to prevent flooding of adjacent areas.

G. Rock Construction Entrance

1. Maintain Rock Construction Entrances on a daily basis or when sediment is tracked on to pavement surfaces. Rock which has silted in shall be removed and replaced with clean river rock. Manufactured products shall be cleaned or replaced.

H. Paved Areas

1. At a minimum, provide daily sweeping of all paved surfaces. Provide additional sweeping as needed to remove excess sediment from paved surfaces.

3.7 REMOVAL AND RESTORATION

A. Control of drainage and erosion shall include restoration work in preventing siltation of public waters.

B. Restoration shall include cleanup, shaping, replacement of topsoil, and establishment of vegetative cover on all disturbed areas where water pollution potentials have been increased due to the construction operations.

C. Following final turf and vegetation establishment:

1. Remove any and all excess sediment from site prior to removal of devices.
2. All erosion and sedimentation control materials shall be completely removed and disposed of off-site.
3. All trenches and divots from anchors shall be backfilled and restored with vegetation.
4. Do not allow re-suspension of sediment or loss of trash or oil into the water during device removal.

3.8 COMPENSATION

A. All expenses related to complying with the provisions herein shall be borne by the Contractor with no additional compensation being permitted.

END OF SECTION 31 25 00

SECTION 32 12 16

ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Constructing stabilized aggregate base on prepared subgrade or sand subbase in accordance with Mn/DOT 2211.
 - 2. Constructing stabilized aggregate base under miscellaneous concrete slabs.
 - 3. Performing a proof roll on the stabilized aggregate base prior to paving the binder course.
 - 4. Constructing asphalt binder and wear courses in accordance with Mn/DOT 2360.
 - 5. Schedule and coordinate testing of Asphalt Courses.

1.2 SUBMITTALS

- A. Submit shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following shop drawings:
 - 1. Asphalt Mix Design:
 - (a) Submit a report by an approved testing laboratory certifying that materials are in accordance with Specification requirements.
 - (b) Submit a job mix formula for each pavement course and the mix temperature.
- C. During paving:
 - 1. Provide hot mix samples to the Independent Testing Lab (ITL) for determination of the actual asphalt mixture properties during production and for laboratory testing.

1.3 QUALITY ASSURANCE

- A. Construction of asphalt paving, including stabilized aggregate base, shall be done by a responsible Contractor having necessary equipment, plant, and not less than 10 years-experience in performing Work similar to that included under this Contract.
- B. Use only materials which are furnished by a bulk asphalt pavement producer regularly engaged in production of hot-mix, hot-laid asphalt pavement. The plant shall be a Mn/DOT certified plant.
- C. Employ and pay for the services of a registered Engineer or Land Surveyor to stake and tape limits of the work. Refer to Section 01 71 23 Field Engineering.
- D. Testing and Inspection:
 - 1. The Owner will employ and pay for the services of a testing and inspection service for quality control testing (Independent Testing Lab (ITL)).
 - 2. Provide a fully loaded tandem axle dump truck for proof rolling operations and perform proof rolling in presence of the Testing Laboratory representative. Perform the proof roll test as many times as necessary as determined by the Testing Laboratory representative to the satisfaction of the Testing Laboratory representative.

3. Coordinate all paving activities with the Testing Laboratory. Inform the Testing Laboratory representative of the proposed paving schedule at least 48 hours prior to commencing work. Do not perform paving operations which require inspection by the Testing Laboratory unless Testing Laboratory representative is present.
 4. Provide hot-mix asphalt samples, from behind the paver, to the ITL prior to compaction.
 5. The ITL will test in-place asphalt pavement courses for compliance with requirements for density and thickness.
 - (a) Take two (2) - 4" diameter pavement specimens for each completed course, from locations as directed by ITL. Provide specimens to the ITL.
 - (b) Repair holes from test specimens as specified for patching defective work.
- E. Density Requirements:
1. The ITL will determine maximum specific gravity (Gmm) of asphalt materials in accordance with AASHTO T209, Mn/DOT modified procedure.
 2. In place pavement with density less than 87% of maximum shall be removed and replaced at no additional cost to the Owner.
- F. Thickness:
1. Minimum design thicknesses are shown on the Drawings. In-place, compacted thicknesses will not be accepted if the variation from the design thickness is more than the following:
 - (a) Wear Course: More than ½" below design thickness.
 - (b) Non-wear Course: More than ½" below design thickness.
 2. Single courses which do not meet the minimum design thickness or acceptable variation from design thickness listed herein shall be removed and replaced at no additional cost to the Owner.
 3. The total thickness of the final, in-place asphalt pavement shall not be less than the total thickness of the design asphalt courses shown on the Drawings. In-place asphalt pavement which does not meet the minimum overall thickness referenced above shall be removed and replaced at no additional cost to the Owner.
- G. Surface Smoothness:
1. Provide final surfaces of uniform texture, conforming to required grades and cross-sections.
 2. Test finished surface of each asphalt pavement course for smoothness, using a 10' straight edge applied parallel to and at right angles of paved areas.
 3. Check paved surfaces at intervals directed by Engineer.
 4. Tolerance:
 - (a) Surfaces will not be acceptable if exceeding the following:
 - (1) Non-wear Course: 1/4" in 10'
 - (2) Wear Course: 3/16" in 10' when measured in any direction
- H. Ponding:
1. Surfaces will not be acceptable if ponding water exceeds 3/16" as determined by the Engineer.
 2. Remove and replace all unacceptable ponding pavement areas at no additional cost to the Owner.
 3. Provide positive drainage of the finished surface. Any "bird baths" will be considered unacceptable and shall be remedied to the satisfaction of the Engineer at no additional cost to the Owner.

1.4

SITE CONDITIONS

A. Weather Limitations:

1. Apply bituminous tack coat only when the ambient temperature in the shade is at least 50°F and when the temperature has not been below 35° F for 12 hours immediately prior to application.
2. Do not apply tack coat when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
3. Construct asphalt pavement courses only when atmospheric temperature is above 40°F, when the underlying base is dry, and when weather is not rainy.
4. Paving shall not take place when, in the opinion of the Engineer or testing laboratory, the weather or surface conditions are considered unfavorable.
5. Comply with Mn/DOT 2360.3 A.4 for Weather Limitations and Paving Date. Do not pave after the Paving Date listed in the Mn/DOT specification.

B. Grade Control: Establish and maintain the required lines and grades for each course during construction operations.

C. Protect grass, vegetation, concrete work, building, and other work adjacent to paving, with building paper or other suitable material, so that stains of bitumen shall not reach these surfaces.

D. Traffic Control:

1. Maintain vehicular and pedestrian traffic during paving operations as required for other construction activities.
2. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety and to cause the least interruption of work.

E. Coordination and Responsibility:

1. Coordinate pavement construction with casting adjustments.
2. Coordinate installation of Stabilized Aggregate Base with Earthwork Contractor. Stabilized Aggregate Base shall not be installed until proof roll is conducted by the Earthwork Contractor and approved by the Geotechnical Engineer. Once approved, stability of the subgrade soils shall be the responsibility of the Asphalt Paving Contractor. Measures to protect subgrade from becoming unstable and maintaining stability of subgrade soils shall be provided. Subgrade stabilization will not be an additional cost to the Owner. If unstable areas are encountered, provisions for testing and corrective action outlined in Section 31 00 00 Earthwork shall be strictly adhered to by the Asphalt Paving Contractor.
3. Coordinate installation of Stabilized Aggregate Base with concrete Contractor.
4. Coordinate installation of Stabilized Aggregate Base with Electrical contractor for installation of conduits, light pole bases and other electrical items.

1.5

REQUIREMENTS

A. Job-Mix Criteria:

1. Provide job-mix formulas for each required asphalt-aggregate mixture.
2. Establish a single percentage of aggregate passing each required sieve size, a single percentage of asphalt cement to be added to aggregate, and a single temperature at which asphalt pavement is to be produced.
3. Comply with the mix requirements of the Minnesota Department of Transportation (Mn/DOT) standards.
4. Maintain material quantities within allowable tolerances of the governing standards.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stabilized Aggregate Base:

1. Stabilized Aggregate Base shall be one of the following products:

(a) Limestone product:

- (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-3, Class 5, modified to be 100% crushed limestone.**

(b) Igneous Stone product:

- (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-3, Class 5, modified to be 100% crushed igneous stone.**

(c) Product containing recycled materials:

- (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-4, Class 5.**

(d) Reclaimed product:

- (1) Aggregate shall meet the requirements of Mn/DOT Spec 3138. Gradation shall meet Table 3138.2-6, Class 5.**

B. Binder and Wear Course:

1. Mix Designs shall conform to Mn/DOT Section 2360.2, except as modified herein:

- (a) Sewage Sludge Ash (SSA) (2360.2A2j) is not allowed in binder or wear course pavements.**

C. Asphalt Binder Course:

1. Materials and methods of preparation and construction shall meet requirements of Mn/DOT Spec 2360.

- (a) SP NW B 3 30 C**

D. Bituminous Tack Coat:

1. Tack coat shall be CSS-1H or CRS-2 cationic emulsified asphalt diluted 50/50 with clean water.

- (a) Tack coat shall meet requirements of Mn/DOT Spec 2357.**

E. Asphalt Wear Course:

1. Materials and methods of preparation and construction shall meet requirements of Mn/DOT Spec 2360.

- (a) SP WE A 3 40 C**

PART 3 - EXECUTION

3.1 PREPARATION PRIOR TO PAVING

A. Proof Roll:

- 1. Refer to Section 31 00 00 for proof roll requirements. Stabilized Aggregate Base shall not be installed until the subgrade area has been reviewed, tested, and approved.**
- 2. Do not begin paving work until such conditions have been corrected and are ready to receive paving. Once subgrade is accepted by the paving Contractor, cost of subgrade correction, if required, will be borne by the paving Contractor.**

B. Stabilized Aggregate Base Installation:

1. In accordance with Mn/DOT 2211, construct aggregate base to the thickness shown on the Drawings. Extend aggregate base to one foot beyond back of curbs, where applicable.
2. Uniformly grade all ruts and ridges prior to installation of Stabilized Aggregate Base to provide uniform material thickness.
3. Aggregate base shall be compacted to 100% Standard Proctor (ASTM D698).

C. Proof Roll on Stabilized Aggregate Base:

1. All proposed pavement areas shall be proof rolled in accordance with Mn/DOT 2111 after finish grading the aggregate base in the presence of the Geotechnical Engineer.
2. The pavement aggregate base shall be proof rolled, using a fully loaded tandem rear axle dump truck immediately prior to placement the binder course.
3. Proof roll shall occur no more than 48 hours before placement of subsequent courses. Proof roll shall be redone if precipitation falls on the site between initial proof roll and placement of subsequent courses.
4. Test rolling shall not be performed until the Geotechnical Engineer and Contractor mutually agree that the aggregate base has been properly prepared and is acceptable for test rolling.
5. The test rolling shall be performed by making 2 passes over each strip covered by the width of a tire. Unrolled areas between the tire paths shall not be wider than 12 inches. The roller shall be operated at a speed of not less than 2½ nor more than 5 miles per hour and in a pattern approved by the Geotechnical Engineer.
6. The required subgrade stability shall be such that during placement of the base, rutting and displacement does not occur. Maximum yield: 0" (no deflection).
7. Furnish a device that will mark the surface where rutting or yielding occurs.
8. If test rolling shows any area to be unstable (yielding or rutting at the time the roller passes over the grade), remove the aggregate base course to expose the subgrade, scarify the subgrade and aerate or add moisture to the subgrade soil as necessary, and recompact the soil to the extent it will be stable when retested by rolling.
 - (a) The exposed subgrade shall be scarified to a depth of not less than 12 inches, moistened or dried to within the percentage of the soils optimum moisture content (ASTM D698) specified herein, and compacted to the specified density. Disc and dry soils as required to accomplish the specified moisture content. Include all costs for subgrade correction in the Bid. No additional costs related to subgrade correction will be permitted.
 - (1) Spread, disk, or otherwise dry wet soils as required to achieve a uniform moisture content throughout the soil. Moistens soils when too dry to achieve the required moisture content.
 - (2) Scarify, remove, recompact or otherwise rectify all soft or yielding areas resulting from construction operations, rain, groundwater, or other sources at no additional cost to the Owner.
 - (3) If there are areas which cannot be compacted, the upper 2 feet of the resulting subgrade shall be scarified to a moisture content not more than 2 percent above optimum and compacted to a minimum of 100 percent Standard Proctor. If after scarifying the areas still cannot be compacted, the unstable materials shall be subexcavated to a depth of 3 feet and be replaced with materials which can be compacted.
9. Areas shall be reworked and retested to the satisfaction of the Geotechnical Engineer.

D. Tack Coat:

1. Apply to contact surfaces of previously constructed asphalt pavement or concrete and similar surfaces.
2. Apply at rate of 0.05 to 0.15 gal. per sq. yd. of surface.

3. Apply tack coat by brush to contact surfaces of curbs, gutters, manholes, catch basins, gate valve boxes, and other structures projecting into or abutting asphalt pavement.
4. Allow surfaces to dry until material is at condition of tackiness and to receive pavement.

3.2 PAVING

A. Prepare the site to receive the subsequent improvements shown on Drawings and outlined herein.

1. Remove loose and foreign materials from the stabilized aggregate base surface immediately before paving.
2. Do not displace aggregate base material.
3. Construct asphalt binder and wear courses with self-propelled power operated paving equipment. The paver shall be equipped with a heated, adjustable screed.
4. Begin paving at the high elevation side of the area. After first strip has been placed and rolled, place succeeding strips, progressing down slope.
5. Complete binder course for the area before placing wear course.
6. Place mixture in as continuous an operation as practicable.
7. Hand Placing:
 - (a) Spread, tamp and finish mixture using hand tools in areas where machine spreading is not possible.
 - (b) Place mixture at a rate that will ensure handling and compaction before mixture becomes cooler than acceptable working temperature.
8. Joints:
 - (a) Gradually make joints between old and new pavements, or between successive days' work, to ensure a continuous bond between adjoining work.
 - (b) Construct joints to have the same texture, density and smoothness as adjacent sections of asphalt pavement course.
 - (c) Clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
 - (d) Offset transverse joints in succeeding courses not less than five feet.
 - (e) Sawcut the back edge of previously placed course to expose an even, vertical surface for full course thickness.
 - (f) Offset longitudinal joints in succeeding courses not less than 6".
 - (g) When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory section to expose an even, vertical surface for full course thickness.

B. Asphalt Binder Course:

1. Construct the asphalt binder course with power operated paving equipment designed for paving. Inaccessible and small areas may be placed by hand. Place at a thickness so that when compacted it will be in accordance with indicated grade, cross-section, finish thickness, and density specified.
2. Apply tack coat to all vertical surfaces of existing concrete or asphalt which will be in contact with new pavement.
3. Construct an asphalt binder course over the previously placed stabilized aggregate base course. Thickness shall be as shown on the Drawings.
4. Compact binder course as outlined herein.

C. Asphalt Wear Course:

1. Construct an asphalt wear course with power operated paving equipment designed for paving. Inaccessible and small areas may be placed by hand. Place at a thickness so that when compacted it will be in accordance with indicated grade, cross-section, finish thickness, and density indicated.
2. Apply tack coat to all vertical surfaces of existing concrete or asphalt which will be in contact with new pavement. Apply tack coat to previously installed binder course.
3. Construct an asphalt wear course over the previously placed asphalt binder course or stabilized aggregate base course. Thickness shall be as shown on the Drawings.
4. Compact wear course as outlined herein.

3.3 COMPACTING THE MIX

A. General Requirements:

1. Breakdown and second rolling shall be accomplished by a self-propelled, steel-wheel type, tandem roller weight not less than eight tons and exerting a compression of not less than 250 pounds per inch on the rear rollers. During break-down rolling, vibratory rollers shall operate at 8 to 10 impacts per foot.
2. Provide adequate number of rollers to obtain the minimum required pavement density of 90% of the recorded laboratory specimen density.
3. Begin rolling operations as soon after pavement placement as practicable, when the mixture will bear weight of roller without excessive displacement.
4. Roller must be properly moistened, must operate continually and must not stand idle on newly placed mixture.
5. Do not permit heavy equipment, including rollers, to stand idle on finished surface before it has thoroughly cooled or set.
6. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
7. Start rolling longitudinally at extreme lower side of the area and proceed upslope. Roll to slightly different lengths on alternate roller runs.
8. Do not roll centers of crowned road or drive section first under any circumstances.

B. Breakdown Rolling (Binder and Wear Courses):

1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
2. Operate rollers as close as possible to paver without causing pavement displacement.
3. Check crown, grade, and smoothness after breakdown rolling.
4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

C. Second Rolling (Binder and Wear Courses):

1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
2. Continue second rolling until mixture has been thoroughly compacted.

D. Finish Rolling (Wear Courses):

1. A pneumatic tired roller followed by a smooth drum steel wheeled roller shall be used for finish rolling. Pneumatic tired rollers shall be capable of exerting a pressure of not less than 200 pounds per inch of rolling width.
2. Perform finish rolling while mixture is still warm enough for removal of roller marks.

3. Continue rolling until roller marks are eliminated and course had attained specified density.
4. Depression or high areas which develop during rolling shall be corrected to produce a surface with no variations greater than 3/16 inch as measured by a ten-foot straight edge. Roller marks shall be rolled-out to provide smooth surface, however over compaction will require removal and replacement of the area.

3.4 PATCHING

- A. Remove and replace defective/unacceptable areas.
- B. Remove deficient areas for full depth of course.
- C. Sawcut sides perpendicular and parallel to direction of traffic with edges vertical.
- D. Apply tack coat to exposed surfaces before placing new asphalt pavement mixture.
- E. Cut-out and fill with fresh, hot asphalt pavement.
- F. Compact by rolling to specified surface density and smoothness.
- G. Use infrared thermal patching equipment at all patching joints eliminate cold joints.

3.5 CLEANING

- A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of Architect/Engineer.

3.6 PROTECTION

- A. After final rolling, do not permit vehicular traffic on asphalt pavement until it has cooled and hardened and in no case sooner than 6 hours.
- B. Provide barricades and warning devices as required to protect pavement and the general public.
- C. Cover openings of structures in the area of paving until permanent coverings are placed.

END OF SECTION 32 12 16

SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Prepare pavement surfaces for pavement markings.
 - 2. Furnish and apply paint for pavement areas as shown on the Drawings and specified herein.

1.2 QUALITY ASSURANCE

- A. All paint shall be obtained from a single source/brand.

PART 2 - PRODUCTS

2.1 PAVEMENT MARKINGS

- A. Paint.
 - 1. All paint shall meet the requirements of Acrylic Waterborne Paint, Federal Specification TT-P-1952E Type I. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.
- B. Colors.
 - 1. Colors of all markings shall be as designated on the drawings. The following colors, as specified in Federal Standard No. 595, may be used:
 - (a) Yellow (33538 or 33655)
- C. Type.
 - 1. All markings shall be reflectorized, except as follows:
 - (a) Black paint used for outlining markings shall not be reflectorized.
 - (b) Taxiway shoulder markings shall not be reflectorized.
- D. Reflective Media.
 - 1. Reflective media shall consist of glass beads meeting the requirements of Federal Specification TT-B-1325D. All reflectorized markings shall have Type III glass beads, except Type I Gradation A glass beads shall be used only with red or pink paint and at such other markings as may be designated in the plans or Special Provisions.
 - 2. Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

2.2 SNOWPLOWABLE REFLECTIVE PAVEMENT MARKERS

- 1. Reflective Pavement Markers.
 - (a) The markers shall be snowplowable reflective pavement markers consisting of a glass-faced plastic reflector assembly glued into a metal housing, and designed to be installed in a slot cut into pavement.
 - (b) The markers shall be Stimsonite Model 96LP-AG as manufactured by Ennis Paint, Inc. or approved equal.

- (c) Taxiway centerline markers shall be two-way reflective and green in color in accordance with FAA guidelines.
- 2. Epoxy. Epoxy adhesive for gluing markers into pavement slots shall meet the requirements of AASHTO Designation M237, Type IV, and as recommended by the marker manufacturer. Low temperature epoxy shall be used when ambient temperature at time of installation is lower than 45° F.

PART 3 - EXECUTION

3.1 RESTRICTIONS

- A. Do not paint during the threat of rain or when the pavement surface is damp.
- B. The painting shall be performed only when the existing surface is dry and clean, when the atmospheric temperature is above 45° F., and when the weather is not excessively windy, dusty, or foggy. Paint shall not be applied when the relative humidity is above 85 percent, nor when pavement temperature is greater than 120° F.

3.2 TRAFFIC PROVISIONS

- A. Attention is called to the provisions of Section 01 35 13, Special Project Procedures, Traffic Provisions and Airport Security, of these specifications.
- B. Whenever pavement markings are applied in the presence of traffic, the Contractor shall furnish and place without extra compensation all necessary warning and directional signs to maintain traffic and shall provide traffic cones to keep from crossing the uncured markings. Traffic cones shall be the type that will not cause damage to the vehicle if accidentally struck.

3.3 SWEEPING

- A. Immediately prior to applying paint, thoroughly sweep the surface.
- B. Properly dispose of sweepings.

3.4 INCLUDE COSTS FOR SWEEPING AND DISPOSAL IN THE BID. SURFACE PREPARATION

- A. When pavement markings are placed on newly completed concrete pavements, remove the existing curing compound film from horizontal surfaces in these locations. Curing compound film need not be removed from curbs or other vertical surfaces. Remove the curing compound in a manner that does not damage the underlying concrete pavement.
- B. Ensure the pavement surface is dry and free from dirt, dust, oil, curing compound, and other contaminants which may interfere with markings properly bonding to the surface. Ensure the clean surface is at least 1 inch wider than the anticipated marking. Shoot an air blast on the pavement surface immediately prior to placing the new marking. The air blast is not intended to remove large amounts of dust, but only a very small amount of residue that might be left from the removal and cleaning operation.

3.5 LAYOUT AND DIMENSIONS

- A. Ensure the following for all painted pavement markings:
 - 1. Uniform thickness,
 - 2. Line widths as specified, with a tolerance of $\pm 1/4$ inch for 4 inch lines and $\pm 1/2$ inch for wider lines,
 - 3. Symbols and Legends are visually proportional to contract documents with an out-to-out tolerance of ± 6 inches, and
 - 4. Markings have sharp edges and cutoffs at the ends.
- B. Accurately place all lines to a close tolerance using a guide. Locate the lines as follows:
 - 1. For straight or nearly straight lines, reference the locations to a stringline set between marking line points.

2. For curves, reference the locations to closely spaced marking line points. For sharp curves, a spacing of 10 feet may be required.

- C. Striping shall be 6" in width unless otherwise noted.

3.6 PAINT APPLICATION

- A. Apply paint according to the manufacturer's requirements and instructions.
- B. Use an applicator that is capable of producing a uniform straight line with sharp edges.
- C. Application Rates. Waterborne paint shall be applied at a rate of 115 square feet per gallon maximum. Glass beads Type III shall be applied at a rate of 10 pounds per gallon minimum. Type III glass beads shall not be used on red or pink markings. Glass beads Type I – Gradation A shall be applied at a rate of 7 pounds per gallon minimum. On red or pink paint, the application rate for Type 1 Gradation A glass beads shall be reduced by 2 pounds per gallon.

3.7 DISPOSAL OF PAINT CONTAINERS

- A. Dispose of paint containers properly and in accordance with applicable regulatory requirements.

END OF SECTION 32 17 23

SECTION 32 32 13

CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes labor, materials, equipment, and accessories to provide the following:

1. Cast-in-place concrete as follows:
 - (a) Slabs
2. Expansion joint material
3. Reinforcement materials
4. Caulking over expansion joints
5. Schedule and coordinate testing of concrete.
6. Adequate measures to protect fresh concrete from traffic and damage/staining

1.2 SUBMITTALS

A. Submit information and shop drawings in accordance with Section 01 33 00 – Submittal Procedures.

B. Submit the following product information and shop drawings:

1. Mix Designs
2. Curing Compounds
3. Sealing Compounds
4. Admixtures
5. Expansion Joint Material
6. Reinforcement Materials

C. Submit the following plans (if applicable):

1. Cold Weather Placement Plan
2. Hot Weather Placement Plan
3. Alternative Jointing Plan
4. Plans shall include:
 - (a) Proposed Adjustments to Mix Design
 - (b) Proposed Method of Curing
 - (c) Detailed Schedule
 - (d) Plan for Additional Testing Procedures

1.3 QUALITY ASSURANCE

A. Employ and pay for the services of a registered Engineer or Land Surveyor to stake and tape limits of Work.

B. The Owner will provide testing services performed by a testing laboratory. Should a test fail, correct the failure and pay costs for retesting until approved by the testing laboratory.

- C. Coordinate with the Testing Laboratory. Inform the Testing Laboratory representative of the proposed schedule at least 48 hours prior to commencing work. Do not perform operations which require testing by the Testing Laboratory unless Testing Laboratory representative is present.
- D. Cold weather and hot weather placement shall be in accordance with ACI 306.1 and 305.1, respectively, and as stated herein.
- E. Source Limitations:
 - 1. Each type or class of cementitious material shall be of the same brand from the same manufacturer's plant.
 - 2. Obtain all aggregates from a single source.
 - 3. For all admixtures, curing compounds and sealing compounds, one single product each shall be used to complete the entire project unless otherwise indicated.
- F. Ready-mix concrete supplier shall comply with ASTM C94.
- G. Installer's Qualifications: A certified ACI flatwork finisher shall be on site at all times during installation.
- H. Field Quality Control
 - 1. Testing:
 - (a) Test the first three truck loads then every fifth truck load thereafter.
 - (b) Sampling shall be per ASTM C172.
 - (c) Testing shall include:
 - (1) Slump per ASTM C143
 - (2) Temperature per ASTM C1064
 - (3) Water Content per AASHTO T-318
 - (4) Air Content per ASTM C231
 - (5) Strength per ASTM C39
 - (6) Minimum five cylinders required for overall testing
 - (d) All test reports indicating noncompliance shall be emailed immediately to all parties on the test distribution list.
 - (e) Work that fails to meet requirements shall constitute consideration for rejection by the Engineer. Cost of measures to make work satisfactory shall be paid for by the Contractor.
 - 2. Finish
 - (a) Finished concrete shall be uniform in color and texture.
 - (b) Finished surface shall be free of pits, pop-outs, spalling, blisters, delamination, cracks (other than at control joints), curling, scaling, or discoloration.
 - (c) Finished concrete that does not comply with this specification shall be removed and replaced in complete sections from joint to joint unless otherwise approved by the Engineer.
- I. Surface Smoothness:
 - 1. Provide final surfaces of uniform slope, conforming to required grades and cross-sections.
 - 2. Test finished surface for planarity, using a 10' straight edge applied parallel to and at right angles.
 - 3. Check surfaces at intervals directed by Engineer.

4. Tolerance:
 - (a) Surfaces will not be acceptable if exceeding the following:
 - (1) 1/4" in 10' when measured in any direction.

J. Ponding:

1. Surfaces will not be acceptable if ponding water exceeds 1/8" as determined by the Engineer.
2. Remove and replace all unacceptable ponding areas at no additional cost to the Owner.
3. Provide positive drainage of the finished surface. Any "bird baths" will be considered unacceptable and shall be remedied to the satisfaction of the Engineer at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 CONCRETE

A. Mix Design Requirements

1. Strength:
 - (a) In place minimum compressive strength at 28 days shall meet or exceed 5,000 psi.
 - (b) High-early strength concrete shall have an in place minimum compressive strength at 3 days that meets or exceeds 3,000 psi.
2. Water-Cement Ratio:
 - (a) Shall not be more than 0.42
3. Air Content:
 - (a) Shall be 5 to 8.5% percent by volume.
4. Slump:
 - (a) Shall be +/- 1.5" of the design slump on the reviewed mix designs.
5. Workability:
 - (a) Concrete shall be of a consistency which will fill forms without voids or honeycombs, completely embed and bond to reinforcing without permitting materials to separate, and not promote excess water to collect on surface.

B. Materials

1. Cement shall meet or exceed ASTM C595, Type 1L.
 - (a) Adding additional amounts of Type I Portland cement may be used to produce high-early strength concrete when approved.
2. Fly Ash shall meet or exceed ASTM C618, Class C or F.
 - (a) Not more than 20% by weight.
3. Aggregates shall meet MnDOT Class A, ASTM #67 per MnDOT Table 3137.2-4.
4. Water shall meet or exceed ASTM C1602.
5. Admixtures
 - (a) Provide admixtures certified by manufacturer to be compatible with other admixtures.
 - (b) Shall be used in accordance with manufacturers recommendations.

- (c) Approved Manufacturers:
 - (1) The Euclid Chemical Company
 - (2) BASF Corporation
 - (3) Sika Group
 - (4) MAPEI
 - (5) Saint Gobain/Chryscos
 - (6) Or Approved Equal
- (d) Use of the following admixtures are at the Contractor's discretion:
 - (1) Air-Entraining Admixture shall meet or exceed ASTM C260.
 - (2) Water Reducing Admixture shall meet or exceed ASTM C 494/C 494M, Type A.
 - (3) Retarding Admixture shall meet or exceed ASTM C 494/C 494M, Type B.
 - (4) Water Reducing and Retarding Admixture shall meet or exceed ASTM C 494/C 494M, Type D.
 - (5) Viscosity Modifying Admixture (VMA) shall meet or exceed ASTM C 494/C 494M, Type S.
 - (6) Non Chloride, Non Corrosive Accelerating Admixture shall conform to ASTM C494, Type C or E, and not contain more chloride ions than are present in municipal drinking water.
- (e) Use of the following admixtures is prohibited:
 - (1) Calcium Chloride

2.2 EVAPORATION RETARDER:

- A. Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Approved Products:
 - 1. Euclid Chemical Company (The); Eucobar
 - 2. BASF; MasterKure ER 50
 - 3. Or Approved Equal

2.3 CURING AND SEALING

- A. Absorbent Covers:
 - 1. AASHTO M 182, Class 2, new, never been used before burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
 - 2. Material shall be free of harmful substances, such as sugar or fertilizer, or substances that may discolor the concrete. To remove soluble substances, burlap should be thoroughly rinsed in water before placing it on the concrete.
- B. Moisture Retaining Covers:
 - 1. Plastic Film Curing Membrane: 4-10 mil thick polyethylene sheeting, complying with ASTM C171 and Product Standard PS17. Use white for hot weather applications and black for cold weather applications.
 - 2. White burlap polyethylene sheet meeting ASTM C 171.
 - 3. Conforming to ASTM C171: A naturally colored, non-woven polypropylene fabric with a 4 mil non-perforated reflective (white) polyethylene coating containing stabilizers to resist degradation from ultraviolet light. Fabric shall exhibit low permeability and high moisture retention.

4. Approved Products

- (1) PNA Construction Technologies, Inc.; Hydracure M15.
- (2) Reef Industries Incorporated; Transguard 4000.
- (3) Or Approved Equal

C. Curing Compounds

- 1. Shall meet ASTM C309, Type 1 Class A
- 2. Do not use products with a manufacturing date older than 1 year from the date of application.
- 3. Shall be a water based dissipating curing compound
- 4. Use one single product to complete the entire project unless otherwise noted.
- 5. Manufacturer's certification is required.
- 6. Approved Products:
 - (a) DW WB Dissipating Cure 2519 by TK Products
 - (b) Or Approved Equal.

D. Curing Compounds for cold weather applications

- 1. Products used in this section will require the Contractor to return to the site the following Spring, once weather permits, to apply the specified sealing compound to all concrete surfaces.
- 2. Shall meet ASTM C 1315, Type 1, Class A with Siloxane
- 3. Do not use products with a manufacturing date older than 1 year from the date of application.
- 4. Shall be a clear, membrane forming curing compound
- 5. Use one single product to complete the entire project unless otherwise noted.
- 6. Manufacturer's certification is required.
- 7. Approved Products:
 - (a) PROSOCO, Single Step ® (not film forming)
 - (b) TK Products, TK-ONE STEP (not film forming)
 - (c) Or Approved Equal

E. Sealing Compounds

- 1. Shall be a penetrating silane/siloxane water repellent treatment providing a minimum 85% reduction in water absorption and 82% reduction in chloride penetration when tested in accordance with NCHRP 244.
- 2. Approved Products:
 - (a) Euclid Chemical Company (The), Barricade WB 244
 - (b) W.R. Meadows Inc, Intraguard
 - (c) Or Approved Equal.

2.4 REINFORCING MATERIALS

A. Macrofiber Reinforcement

- 1. Shall meet ASTM C1116 and ASTM D7508 Level 3.
 - (a) The Steel Reinforcement Ratio (%) to calculate the f_{e3} value shall be 0.15

2. Approved Manufacturers:
 - (a) BASF
 - (b) Sika Fibers LLC
 - (c) General Resource Technology (GRT)
 - (d) Forta
 - (e) Grace
 - (f) Cemstone
 - (g) Full Force
 - (h) Or Approved Equal

2.5 MISCELLANEOUS MATERIAL

A. Expansion Joints

1. Shall meet ASTM D1751 and Federal Specification HH-F-341F, Type 1.
2. Shall be composed with fibers of cellular nature bonded together with bituminous binder with sheets saturated in asphalt.
3. An expansion joint cap shall be used.
4. Approved Products:
 - (a) Fibre Expansion Joint with SNAP-CAP by W.R. Meadows Company
 - (b) Or Approved Equal.

B. Caulk

1. Shall be specifically designed for sealing expansion joints.
2. Shall be suitable for temperature ranges from -20°F to 120°F.
3. Shall be non-sag.
4. Shall be weather and UV resistant.
5. Shall adhere directly to the concrete surface without the use of a primer.
6. Shall be gray in color.
7. Approved products:
 - (a) Dow Corning 888 Silicone Joint Sealant.
 - (b) Crafc0 RoadSaver #34902NS.
 - (c) Or approved equal.

PART 3 - EXECUTION

3.1 INTEGRATION OF MACROFIBER REINFORCEMENT

- A. Provide macrofiber reinforcement in all concrete covered by this Specification.
- B. Add fibers to the concrete at the beginning of the mixing cycle, but not at the same time as the cement, at a proportion of 3 to 5 pounds per cubic yard.
- C. Mix fibers with concrete for a minimum of 5 minutes at mixing speed to ensure complete dispersion and uniformity.

3.2 PREPARATION BEFORE PLACING CONCRETE

- A. Examine conditions under which concrete work is to be performed. Do not proceed with work until unsatisfactory conditions have been corrected.
- B. Before concrete placement, complete formwork installation, secure reinforcement in place, and position all embedded items.
 - 1. Use standard metal forms. Wood forms will not be permitted.
 - 2. Construct forms in accordance with ACI 301, to the sizes, lines, and dimensions shown and as required to obtain accurate alignment, location, and grades.
 - 3. Design, support, brace, and maintain formwork to safely support loads that will be applied.
 - 4. Thoroughly clean and remove surface irregularities from forms and excavations including ice, water, wire, and other debris prior to pouring concrete.
 - 5. Fog spray forms, reinforcement, and base materials just before placing concrete.
 - 6. Level and plumb forms in finished structures.
- C. Remove hardened concrete and foreign materials from inner surfaces of conveying equipment.

3.3 CONVEYING CONCRETE

- A. Handle concrete from mixer to place of final deposit as rapidly as practical by methods which shall prevent segregation or loss of ingredients and in a manner which shall ensure that concrete quality is maintained.

3.4 PLACING CONCRETE

- A. Do not allow concrete to drop freely more than 4 feet for conventional concrete and 10 feet for concrete containing the high range water reducing admixture.
- B. Do not begin to place concrete while rain, sleet, or snow is falling unless adequate protection is provided and, when required, acceptance of protection is obtained. Do not allow rainwater to increase mixing water or to damage the surface of the concrete.
- C. Cold Weather Placement
 - 1. Submit a plan prior to concrete installation in cold weather conditions.
 - 2. Comply with ACI 306.1 and as follows:
 - (a) Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 3. When average high and low temperature is expected to fall below 40°F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 4. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 5. Only approved admixtures shall be used.
- D. Hot Weather Placement
 - 1. Submit a plan prior to concrete installation in hot weather conditions.
 - 2. Comply with ACI 305.1 and as follows:
 - (a) Maintain concrete temperature below 80°F at time of placement.
- E. Slabs
 - 1. Provide control joints.

3.5 CONSOLIDATING CONCRETE

- A. Consolidate concrete by vibrating, spading, rodding or forking so that concrete is thoroughly worked around reinforcement, around embedded items, and into corners of forms to eliminate air or stone pockets which may cause honeycombing, pitting or planes of weakness.

3.6 FINISHING CONCRETE

A. Slabs

- 1. Level concrete after striking off with template or straightedge. After water sheen has left surface, float and follow with a light trowel finish. Care shall be taken not to bring an excess of water and fine sand to surface.

(a) Slabs

- (1) Give surface a coarse broom finish.

2. Joints

- (a) Provide joints with the intended pattern as indicated on the Drawings. Alterations to jointing pattern shall be reviewed with and approved by the Engineer.

(b) Expansion Joints:

- (1) Provide a ½-inch thick expansion joint in concrete flatwork (walks, slabs) at intervals of a maximum of 60 feet in length of run. Provide expansion joint between concrete flatwork and stoops, between concrete flatwork and retaining walls, and between concrete flatwork and building walls.
- (2) Provide caulk sealant over expansion joint at all stoops, cast-in-place retaining walls, and building walls.

- (c) Construction joints shall be either tooled or sawcut, but not both on a single site, to a minimum of 1/3 the thickness of the concrete section depth.

(1) Tooled Joints:

- 1. Round surface edges and control joints to a ¼ inch radius.
- 2. Maximum joint radius is ½ inch unless noted otherwise. Concrete with joints larger than ½ inch radius will require the sections of concrete to be removed and replaced.

(2) Sawcut Joints

- 1. Sawcut lines shall be measured for uniformity (equal distance between joint lines) and chalk lined before making the cuts.
- 2. A walk-behind type sawcut machine shall be used. Handheld saws will not be permitted. Use wet-cut saws for dust control.
- 3. Sawcut joints shall be 1/8 inch width.
- 4. Begin joint sawing as soon as the concrete has hardened sufficiently to allow sawing without raveling or moving of aggregate. Saw joints before uncontrolled cracking takes place.

B. Evaporation Retarder

- 1. Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.1 lb/sq. ft. x h before and during finishing operations.
- 2. Apply according to manufacturer's written instructions one or more times after placing, screeding, and bull floating or darbying concrete, but before float finishing.

A. Begin curing procedures within 30 minutes of conclusion of finishing operations.

1. Cure concrete surfaces in accordance with ACI 308.1 utilizing one or a combination of the following methods:
 - (a) Water cure continuously for seven days utilizing sprinklers, soaker hoses, ponding, or fog spray. Take care to prevent erosion damage to the surface of the concrete.
 - (b) Absorbent Cover:
 - (1) Cover shall be water saturated and kept continuously wet.
 - (2) Cover concrete surfaces and edges with a 12 inch lap over adjacent absorptive covers when placing.
 - (3) Provide continuous supply of moisture such as sprinklers or soaker hoses when high temperature, low humidity, or windy conditions prevail. Do not allow Absorbent Cover materials to dry out during specified curing period.
 - (c) Moisture Retaining Cover:
 - (1) Cover concrete surfaces with moisture retaining cover meeting ASTM C 171 as soon as possible after final finishing without marring the surface. Place in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - (2) On flat surfaces such as pavements, the cover shall extend beyond the edges of the slab at least twice the thickness of the slab. Place the cover flat on the concrete surface, avoiding wrinkles, to minimize mottling immediately after wetting the slab to rejection. Place and weight the cover so that it remains in contact with the concrete during the specified duration of curing. Place windrows of sand or earth, or place pieces of lumber along all edges and joints in the film to retain moisture and prevent wind from getting under the film and displacing it.
 - (3) Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - (4) Install Moisture Retaining Fabric, in largest practical widths, in accordance with manufacturer's written recommendations. Wet the concrete to rejection, then thoroughly wet fabric side of cover and install with poly side up. Lap over adjacent covers a minimum 18". Weight all laps and outside edges to prevent displacement and to ensure intimate contact with concrete and adjacent covers. Rewet as necessary and protect covers from damage during curing process.
 - (5) Moisture cure or use moisture retaining covers to cure concrete surfaces to receive penetrating sealers, coatings, adhesives, or other subsequent treatments.
 - (d) Curing Compounds
 - (1) Protect surrounding site features during application including, but not limited to, structures, plantings, pavements, surface utilities, light poles, etc.
 - (2) Apply curing compound using the equipment and methods as recommended by the manufacturer.
 - (3) Rate of application shall be as recommended by the manufacturer.
 - (4) Ensure complete, uniform coverage over all concrete surfaces.
2. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

- B. Protect newly placed concrete from damage by adjacent vibratory or backfilling operations for a minimum of 24 hours. Perform vibratory operations on backfilling 72 hours after placing concrete or after the concrete reaches a compressive strength of at least 3,000 psi.

3.8 SEALING CONCRETE

- A. Apply sealing compound to concrete no earlier than 28 days after curing operations have completed.
- B. Protect surrounding site features during application including, but not limited to, structures, plantings, pavements, surface utilities, light poles, etc.
- C. Clean surfaces free from dirt, bitumen, efflorescence, oil, curing compounds, form oil, and other foreign matter. Thoroughly dry surfaces prior to application.
- D. Apply sealing compound using the equipment and methods as recommended by the manufacturer.
 - 1. Rate of application shall be as recommended by the manufacturer.
- E. Ensure complete, uniform coverage over all concrete surfaces.
- F. Protect the treated area from all vehicular and pedestrian traffic until sealing compound has dried completely.

3.9 CLEANUP

- A. Remove all form materials, excess joint materials, concrete spoils, and excess concrete from the site.

3.10 CONCRETE WASHOUT AREA

- A. Provide effective containment for all liquid and solid wastes generated by washout operations (concrete, paint, form release oils, curing compounds, and other construction materials) related to the construction activity.
 - 1. The liquid and solid washout wastes must not contact the ground. Design the containment such that the contained material does not wash away or become mixed with surface runoff.
 - 2. Liquid and solid wastes must be disposed of properly and in compliance with MPCA rules.
 - 3. Install a sign adjacent to each washout facility.
 - (a) The sign shall require site personnel to utilize these containment facilities for disposal of concrete and other washout wastes.

END OF SECTION 32 32 13

SECTION 32 92 23

SODDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Removing temporary vegetation, weeds, root masses, rocks, and other extraneous matter from topsoil prior to sod-bed preparation.
 - 2. Scarifying, loosening, and related sod-bed preparation of all sodded areas.
 - 3. Soil preparation for the sod-bed, including tilling, raking, Fine Grading, and bringing soil to a smooth and uniform grade.
 - 4. Fertilizing prior to laying sod.
 - 5. Sodding and turfgrass establishment.
 - 6. Establish and maintain turfgrass beginning immediately after sodding and continuing through the turfgrass establishment period as specified.
 - 7. Protect sodded areas from weeds, disease, insects, geese, erosion, vandalism and trespassers.
 - 8. Restoration of existing lawn areas which are damaged by work being performed under the Contract. Restoration shall include proper preparation of underlying soils and providing new sod.

1.2 SUBMITTALS

- A. Submit information in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information:
 - 1. Fertilizer

1.3 QUALITY ASSURANCE

- A. Perform work only during periods when beneficial results are likely to be obtained. During periods of excessive drought, excessive moisture or freezing conditions, stop work and resume operations only when desired results are attainable.
- B. Contractors Qualifications:
 - 1. Sod-bed preparation, sodding, turfgrass establishment, and turfgrass maintenance shall be performed by a single firm which specializes in sodding work. The firm shall have not less than three years' experience in sod-bed preparation, Fine Grading, sodding, turfgrass establishment, and turfgrass maintenance.
- C. Turf establishment is required.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Time delivery of sod to ensure that sod will be placed within 24 hours after stripping. Protect sod against drying and breaking of rolled strips.
- B. Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.

PART 2 - PRODUCTS

2.1 SOD

- A. Class of Sod: Sod shall be nursery grown, cultured sod planted on cultivated agricultural land and grown specifically for sod purposes. Sod shall have been mowed regularly and carefully and otherwise maintained from planting to harvest to maintain reasonable quality and uniformity.
- B. Composition: Sod shall be composed of not less than 60 percent Kentucky Bluegrass.
- C. Mowing Height: Before stripping, sod shall be mowed uniformly at a height of 1 inch to 2 ½ inches.
- D. Thatch: Sod shall be relatively free of thatch, up to ½-inch allowable (uncompressed).
- E. Diseases, Nematodes, and Insects: Sod shall be reasonably free of diseases, nematodes, and soil-borne insects.
- F. Weeds: Sod shall be free of objectionable grassy and broad leaf weeds.

2.2 FERTILIZER:

- A. Commercial turfgrass grade, uniform in composition, free-flowing material suitable for application with standard equipment.
- B. Deliver fertilizer in original, unopened containers, bearing manufacturer's guarantee, analysis, name, and trademark.
- C. Formulation:
 - 1. Formulation ratio for N-P-K shall be 1:1:1 (1 percent Nitrogen, 1 percent Phosphate, 1 percent Potash).
 - 2. Fertilizer shall be formulated with a slow release sulphur coated Nitrogen and a slow release sulphur coated Potassium.

PART 3 - EXECUTION

3.1 SODDING SCHEDULE

- A. Sod all areas in accordance with the scheduling / phasing indicated in the Contract Documents.

3.2 TURFGRASS ESTABLISHMENT PERIOD

- A. Maintenance, including watering, mowing, weeding, repairing, and other operations, shall continue until the latter of the following:
 - 1. A minimum of 1 growing month from the time sod is installed;
 - 2. Until Project Substantial Completion;
 - 3. Turfgrass establishment, as determined by the Engineer / Landscape Architect.
 - (a) Turfgrass establishment is defined as sod has taken root and 100 percent of individual sod pieces cannot be lifted by hand from the ground.
- B. It may be necessary to continue maintenance into future growing seasons if the turfgrass is not established by the maintenance date specified above. Continue with specified maintenance until turfgrass is established.

3.3 TILLING AND SOD-BED PREPARATION

- A. Topsoil spreading, rough grading, and finish grading for areas to receive sod is specified in Section 31 00 00 Earthwork.
- B. Remove temporary vegetation and weeds. Apply Roundup® or similar herbicide to temporary seeding, weeds, and other unwanted vegetation. Remove dead plant material, including root masses, prior to fine grading.

- C. Cultivate soils to a depth of at least 6 inches to bring soil to a uniformly friable condition.
- D. Apply fertilizer to topsoil. Uniformly blend fertilizer into soil as specified under Fertilizing.
- E. After tilling, bring area to a smooth, even and well drained surface without undulations and irregularities.

3.4 FERTILIZING

- A. Fertilizer application:
- B. During Tilling and Fine Grading, apply fertilizer at a rate of 250 lbs. per acre.
 - 1. Till fertilizer and topsoil to a minimum depth of 4 inches. Till using a disk, rototiller, Harley Rake, or other similar equipment when topsoil contains sufficient moisture and is easily worked. Exercise care when soil is moist.
- C. Subsequent Fertilizer applications:
 - 1. Following the above fertilizer applications, apply Nitrogen Sourced Fertilizer to turfgrass areas until project completion.
 - (a) Adjust fertilizer application rates throughout the growing season. Apply Nitrogen based fertilizers according to the following:
 - (1) March – April: 0-½ lbs. per 1,000 ft²
 - (2) May – June: ¾-1 lbs. per 1,000 ft²
 - (3) July: No application of fertilizer
 - (4) August: ½-¾ lbs. per 1,000 ft²
 - (5) September: 1 lbs. per 1,000 ft²
 - (6) October – November: 1¼-1½ lbs. per 1,000 ft²

3.5 FINE GRADING

- A. Fine Grading shall be accomplished using a land plane, planer bar, drag, or similar light weight equipment designed to smooth the surface and provide a uniform, non-rolling and non-undulating grade.
- B. Fine Grading for general turfgrass areas:
 - 1. Fine Grading will be considered acceptable based on the following:
 - (a) Uniform surface
 - (b) No rills, ridges, tire depressions, windrows, or other irregularities that will affect mowing operations, including bouncing mowers, scalping turfgrass, and similar.
 - (c) Based on visual observation.
- C. Fine Grade tolerance: 0.06' (3/4 inch) variation from finish grades.
- D. Fine Grading must be reviewed by the Engineer / Landscape Architect prior to sodding. Failure to notify the Engineer / Landscape Architect to review Fine Grading will require redoing Fine Grading of deficient areas and resodding at the Contractor's expense.
- E. Immediately prior to sodding, clear surface of soil clumps, brick, block, rocks, and stones larger than 1 inch in diameter. Remove all debris, trash, roots, vegetation clumps, branches, brush, wire, grade stakes, and other deleterious materials.

3.6 SODDING

- A. Before laying sod, correct soft spots and inequalities and remove foreign materials. Sod shall be laid with no voids and shall be well tamped or rolled and thoroughly watered. At completion of Work, sod shall be true and set at finish grade, firm and even at all points.

- B. Where new sod meets existing sod, cut a clean, sharp edge to allow for a consistent, uniform, and straight joint between new sod and existing turfgrass. Jagged or uneven joints will not be accepted. Remove topsoil at the joint between new sod and existing turfgrass, as required, to allow new sod surface to be flush with existing turfgrass surface.

3.7 MAINTENANCE AND ESTABLISHMENT OF TURFGRASS

A. General Requirements:

1. Begin maintenance immediately after sodding.
2. Maintain turfgrass by watering, fertilizing, mowing, weeding, repairing, and other operations, including rolling, regrading, and resodding.
3. Establish a healthy, thick turfgrass, free of dead or yellow sod strips, eroded areas, bare areas, or gaps between sod panels.
4. Maintenance shall be accomplished until the latter of the time frames noted in Paragraph 3.2 "Turfgrass Establishment Period" of this Section.

B. Watering:

1. Maintain a watering schedule that will keep the soil saturated until sod has taken root.
2. Immediately after sod has been laid, thoroughly soak sod and, thereafter, at least once per day, except when adequate rain may fall to make watering unnecessary.
3. Keep sod adequately watered until maintenance dates noted herein. Dry or dead sod will not be accepted.

C. Procurement of water will be the responsibility of this Contract. Where no permanent irrigation system exists, construct temporary above ground irrigation systems, consisting of piping, heads, valves, etc., as required to adequately water sodded areas. All costs associated with watering, including temporary irrigation systems, shall be included in the Bid.

D. Fertilization:

1. Continue to fertilize turfgrass areas as specified herein under Paragraph 3.4 C "Subsequent Fertilizer applications".

E. Mowing:

1. Mowing shall be accomplished by the Contractor.
2. Frequent mowing is critical to turfgrass development.
3. Mow to minimize weed growth and prevent weeds from shadowing desired turfgrass. Mow weeds frequently to prevent weeds from going to seed. Under no circumstances shall weeds go to seed.
4. Make weekly inspections to ensure proper mowing is being accomplished.
5. Mow using a mower with sharp blades.
6. Do not remove more than 1/3 of the turfgrass blade height. Never remove more than one inch from the grass blade during each mowing.
7. It is anticipated that mowing will be necessary every 5 to 6 days.
8. Cutting Height:
 - (a) Accomplish the first mowing after the ground is no longer saturated and is stable enough to support the mower.
 - (b) Mow to a height of 2 ½ inches.
 - (c) Do not allow turfgrass to go into the winter dormant stage with a height greater than 2 inches.

F. Weeding:

1. Spray weeds and undesirable vegetation with an appropriate herbicide. After killing, rake and remove weed remnants. Take care that turfgrass is well established before spraying chemicals.

G. Repairs:

1. Repair turfgrass areas that become eroded, gullied, or damaged, including damage due to vandalism or neglect. Repair yellowed or browned turfgrass areas. Reestablish approved conditions prior to sodding. Resod as originally specified and establish turfgrass. All repair costs will be at the Contractor's expense.

3.8 TURFGRASS ACCEPTANCE

A. Continue Maintenance And Establishment Of Turfgrass until acceptable conditions are obtained.

B. Unacceptable Conditions:

1. Erosion or eroded areas will not be accepted.
2. Rills and ridges will not be accepted.
3. Areas that include barnyard grass, crabgrass, quack grass, and similar undesirable grasses will not be accepted.
4. Areas that include broadleaf weeds will not be accepted.
5. Gaps in sod panels will not be accepted.
6. Dead sod will not be accepted.

C. Acceptance:

1. Turfgrass will be reviewed by the Engineer / Landscape Architect only after the minimum time frames specified herein in Paragraph 3.2.
2. The Engineer / Landscape Architect will visually observe the condition of the sod and turfgrass and determine if the sod is acceptable or not, based on the following:
 - (a) Sod strips that can be lifted by hand indicates the sod has not taken root. The Engineer / Landscape Architect will lift individual sod strips by hand to test for acceptance. Sod that can be lifted will mean the entire sodded area is not accepted.
 - (b) Sod strips shall be dark green in color at the time of acceptance, with no yellow or brown coloration.
 - (c) Turfgrass shall have no gaps between individual sod strips measuring 1" or greater.

3.9 FAILURE OF TURFGRASS ESTABLISHMENT

A. In the event an acceptable turfgrass is not established, treat, repair, and replace damaged work.

B. All costs related to Failure of Turfgrass Establishment will be at the Contractor's expense.

3.10 CLEANING

- A. At completion of work, clean up and remove from site surplus materials, roots, stones, and debris and leave area in a clean, neat condition.
- B. Remove promptly soil and other extraneous material brought onto paved areas by work operations. Keep paved areas clean at all times.
- C. Restore ground areas disturbed as a result of sodding operations to their original condition or to desired new appearance.

3.11 PROTECTION

- A. Protect turfgrass from damage due to landscape operations, operations by other contractors, weeds, disease, insects, erosion, vandalism, and trespassers.
- B. Protection shall be accomplished until the latter of the time frames noted in Paragraph 3.2 "Turfgrass Establishment Period" of this Section.
- C. Protect turfgrass from geese. Determine the means to accomplish.

3.12 EROSION CONTROL DEVICE REMOVAL

- A. Remove erosion control devices, including, but not limited to, silt fence, sediment control logs, etc., after turfgrass is established and there is no risk of erosion.
- B. Backfill and regrade trenches from erosion control devices. Sod and establish turfgrass in these areas.

END OF SECTION 32 92 23

SECTION 33 10 00

WATER UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Surveying for water utility systems.
 - 2. Construction of water utility systems for conveyance of potable water. The work includes relocating and adjusting existing potable water lines as required to construct the improvements shown on the Drawings.
 - 3. Excavation, backfill, and compaction related to water utility system construction.
 - 4. Pipe, backfill materials, and appurtenances for complete potable water system.
 - 5. Protection of the completed water utility system during subsequent construction activities.
 - 6. Adjusting all gate valve boxes to finish grade.
 - 7. As-Built Survey is required and shall be provided by the Contractor.

1.2 APPLICABLE DOCUMENTS

- A. All work shall comply with the requirements of the Department of Labor and Industry and the rules and regulations identified in the Minnesota Plumbing Code.

1.3 SITE CONDITIONS

- A. Maintain benchmarks, monuments, and other reference points. If disturbed or destroyed, have them replaced or relocated by a registered land surveyor at the Contractor's expense.

1.4 SUBMITTALS

- A. Submit information in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information:
 - 1. Product Information:
 - (a) Pipe
 - (b) Fittings
 - (c) Bolts
 - (d) Watermain Polyethylene Encasement
- C. Submit the following Test Results:
 - 1. Bacteriological Tests
 - 2. Hydrostatic Test
 - 3. Leakage Test
 - 4. Tracer Wire Testing
- D. Submit an Operational Inspection report.
- E. Submit an As-Built survey.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All materials required for this work shall be new material conforming to requirements of the referenced specifications for the class, kind, type, size, grade, and other details indicated in the Contract.
- B. All manufactured products shall conform in detail to such standard design drawings as may be referenced or furnished in the Plans.
- C. All materials shall be manufactured in the U.S.A.

2.2 REGULATORY REQUIREMENTS

- A. All products that may come into contact with water intended for use in a public water system shall meet American National Standards Institute (ANSI)/National Sanitation Foundation International (NSF) Standards 60 and 61. A product will be considered as meeting these standards if so certified by NSF, the Underwriters Laboratories, or other organization accredited by ANSI to test and certify such products.

2.3 WATER SERVICE PIPE AND FITTINGS

A. Copper Pipe

- 1. Pipe shall conform to the requirements of ASTM B 88-62, for Seamless Copper Water Tube, Type K, Soft Annealed temper.

B. Fittings

- 1. Fittings shall be cast brass, having uniformity in wall thickness and strength, and shall be free of defects affecting serviceability.
- 2. Fittings shall be flared or compression type. All threads for underground service line fittings shall conform to the requirements of AWWA C-800.
- 3. Approved products:
 - (a) Mueller Mark II Oriseal #H-15155
 - (b) Ford B-44-444M
 - (c) Or approved equal.

2.4 MISCELLANEOUS MATERIALS

A. Bedding and Backfill Material:

- 1. Materials shall be in accordance with Section 31 23 33 Trenching and Backfilling.

B. Chlorine Disinfectant:

- 1. Commercial type chlorinator.
- 2. Dry Calcium Hypochlorine, such as "HTH", "PERCHLORON", or "MAXOCHLOR".
- 3. Or equal.

C. Watermain Polyethylene Encasement:

- 1. Polyethylene encasement material shall conform to the requirements of AWWA C105, 8 mil nominal film thickness, tube type.
- 2. Color: Black.

3. Film Marking Requirements: Conform to AWWA C105/A21.5 and ASTM A674, including AWWA/ASTM standard, corrosion protection warning and applicable range of nominal pipe diameter size(s) every 2 feet along its length.

PART 3 - EXECUTION

3.1 CONSTRUCTION STAKING AND FIELD ENGINEERING

- A. Refer to Section 01 71 23 Field Engineering for requirements.

3.2 INSPECTION AND RESPONSIBILITY OF MATERIALS

- A. Inspect all materials for damage. Promptly remove all damaged material from the site.

3.3 TRENCH EXCAVATION, BACKFILL, COMPACTION, AND DEWATERING

- A. Work shall be in accordance with the provisions of Section 31 23 33 Trenching and Backfilling.

3.4 COORDINATION WITH THE CITY

- A. No valve or other control on the existing water utility system shall be operated for any purpose by the Contractor without approval from the City.
- B. Give the City at least two working days' notice when it is necessary to take a watermain out of service. Disruption of service shall be during the time of day when the least inconvenience will be caused to customers.

3.5 INSTALLATION OF WATER UTILITY SYSTEM

A. Dewatering:

1. Provide dewatering, temporary diversion berms, and drainage swales to divert water away from excavations. Provide dewatering of trench excavations.
2. Drain discharge water to natural drainage channels or to storm sewers. Remove sediment and suspended materials from discharged water as specified in Section 31 00 00 Earthwork under Dewatering.
3. No pipe or fittings shall be laid in water or when trench conditions are unsuitable for work.
4. Provide labor and materials necessary to control erosion at outfall and downstream of dewatering pipe.
5. Comply with dewatering requirements identified in Section 31 00 00 Earthwork.

B. Trenching:

1. Excavate to depth and width necessary for utility construction. Excavation width shall not exceed the outside diameter of pipe plus 24 inches.
2. Excavate to proper elevation and establish trench foundation.
3. Place excavated material on one side of trench, unless conditions are prohibitive. Excavated material shall be so placed as not to obstruct any site drainage pattern.
4. Excavate trench in advance of utility installation, but do not excavate trenches beyond the installation limits for the day.
5. Slope and brace sides of trenches so that workers can work safely and efficiently.

C. Water Service Laying Operations

1. The primary line and grade shall be established by a registered Land Surveyor employed by the Contractor. No deviation from the required line or grade will be allowed except with the consent of the Engineer.
2. Place water service pipe with a minimum of 8'-0" of cover. However, a slightly greater depth may be required to clear existing or proposed storm or sanitary sewers, drintile, or other obstructions.
3. Water service pipe crossing drintile or sewers shall be laid to provide a vertical separation of at least 18 inches, measured to the outside of the pipes.
4. Lay water service pipe at least 10 feet horizontally from any potential source of contamination including, but not limited to, any sanitary sewer pipe, storm sewer pipe, sewer structures, cleanouts, and drintile. Measure this horizontal distance from the outside of the service pipe to the outside of the contamination source.
5. Install water service piping directly on any solid foundation soil that is free of stones and hard lumps.
6. Install piping in one piece, without intermediate joint couplings, between the corporation stop at the watermain tap and the curb stop. Join all pipe and appurtenances by means of approved flared or compression type threaded couplings.
7. Connect water service to watermain with an approved corporation stop. Make the watermain tap at an angle of not more than 22 degrees from horizontal. Place a double wrap of Teflon tape on the corporation stop threads prior to installation. Direct an expansion loop downward from the tap.
8. Install tap service lines on a straight line at right angles to the watermain.
9. Use the proper size and type of tools to flare copper tubing ends, such as will provide accurate sizing and rounding of the ends. Cut tubing squarely and remove all edge roughness prior to flaring. Securely tighten all couplings so the flared end fits snugly against the bevel of the fitting without leakage. Construct the flared joint couplings without the use of jointing compounds.
10. Center the curb box over the curb stop coupling and be firmly support on concrete blocking. Provide clearance so the curb box does not rest on the service pipe. Install the curb box plumb and brace effectively to remain vertical during and after backfilling. Adjust the curb box to proper surface grade after finish grading is complete.

D. Pumping and Bailing Trench Water:

1. Remove water from trenches. Form temporary dams or other conveyance ways for keeping excavation clear of water during work. Provide labor and materials necessary to maintain trenches in a dry state.
2. No pipe or fittings shall be laid in water or when trench conditions are unsuitable for work.
3. Provide labor and materials necessary to control erosion at outfall and downstream of dewatering pipe.
4. Comply with dewatering requirements identified in Section 31 00 00 Earthwork.

E. Backfilling Procedures:

1. Backfill trenches to original ground surface outside of proposed grading limits or to subgrade elevation within proposed grading limits. Place backfill as soon as practical after pipe installation.
2. After pipe is placed on bedding, place haunch zone bedding soils below pipe springline in maximum 8-inch lifts and shovel slice soils for each lift into the haunch zone. Compact haunch zone bedding soils with a walk behind vibratory compactor uniformly on each side of the pipe making a minimum of 2 passes.
3. Above the pipe springline, place initial backfill to 12" above the pipe. Compact initial backfill soils with a walk behind vibratory compactor uniformly on each side of the pipe making a minimum of 2 passes.

4. Place pipe bedding material in trench simultaneously on both sides of pipe for full width of trench and to a minimum height of 12 inches above top of pipe. Shovel place and hand tamp backfill material to fill spaces under and adjacent to pipe completely. Place pipe bedding material from the bottom of trench to 12 inches above top of pipe by either hand or mechanical methods in 2 lifts. The first lift shall be from trench bottom to pipe springline. Compact the first lift by hand or walk behind type vibrating compactor. Compact the second lift with a walk behind vibrating compactor making a minimum of 2 passes.
 5. If the native trench material is unsuitable for any portion of trench backfill, it will be considered surplus material and shall be disposed of off-site, unless otherwise approved by the Engineer. Make a reasonable attempt during the excavation operations to segregate unsuitable materials encountered from suitable materials. Furnish and install additional suitable material needed for backfilling. Backfill shall be sand-gravel or binder stone material as described in Section 31 23 33 Trenching and Backfilling.
- F. Compact trench backfill in accordance with density requirements established in Section 31 00 00 Earthwork.

3.6 ADJUSTING

- A. Correct imperfections and irregularities in work at no additional expense to the Owner.

3.7 WATER SYSTEM DISINFECTION

- A. Before putting the newly installed water utility system into service, disinfect and flush the completed watermain system. After final flushing, test the water for bacteriologic quality. Disinfection materials, procedures, and the collection and testing of water samples shall comply with:
1. MN Department of Health requirements
 2. MN Department of Labor and Industry requirements
 - (a) Disinfection shall comply with MN Rules Chapter 4714, Section 609.9
 3. AWWA C651, Disinfecting Watermains
- B. Where an existing watermain is cut for the installation of a hydrant, tee, valve, or for lowering the existing watermain, disinfect the pipe and fittings prior to installation as follows:
1. Clean the interior of the pipe and fittings of all dirt and foreign material.
 2. Thoroughly swab and spray the interior of the pipe and fittings with a 1 percent minimum hypochlorite solution.
- C. Furnish all materials and perform the disinfecting, flushing, and testing as necessary for meeting the water quality requirements.
- D. Disinfection:
1. Chlorination shall consist of a minimum dosage roughly equivalent to 50 parts per million. Chlorinate at the rate of one pound of chlorine, containing 70% available chlorine, per each 1680 gallons of water in the line.
 2. Shake a predetermined dose into the pipe at the first joint attached to the existing water pipe. Repeat the dosage at frequent intervals, preferably at each pipe joint as the pipe laying progresses.
 3. Fill the newly laid pipe with water very slowly to avoid washing the powder to the extremity of the pipe.
 4. Retain treated water in the pipe long enough to destroy all non-spore-forming bacteria. This period shall be at least three hours and preferably longer as may be directed.
 5. After chlorine treated water has been retained for the required time, the chlorine residual at pipe extremities and at other representative points shall be at least five parts per million.
 6. Operate all valves and other appurtenances while the pipe line is filled with the chlorinating agent.

E. Flushing:

1. Heavily chlorinated water shall not remain in prolonged contact with the pipe after the applicable retention period. Flush heavily chlorinated water from the water system until chlorine concentration is no higher than generally in the system for domestic use.
2. Inspect the chlorinated water discharge location. Ensure that the receiving area is not damaged by the chlorinated water. Use a reducing agent for neutralization as necessary.

F. Bacteriological Tests:

1. Collect two consecutive sets of acceptable samples, taken at least 24 hours apart, after final flushing and before the watermain is placed in service. Collect at least one set of samples from every 1,200 feet of pipe. Collect at least one set from the end of the main and one set from each branch line.
2. Test all samples for bacteriological quality to show the absence of coliform organisms.
3. If water in the pipe does not meet the minimum requirements, repeat the disinfection procedure until meeting the requirements. Furnish and submit test results and acceptance forms from the governing agency.

3.8 PRESSURE AND LEAKAGE TESTING

A. General Requirements:

1. Accomplish testing to assure quality of materials and/or workmanship. Include all costs for testing in the Bid.
2. Coordinate the tests to be performed. Notify the City as to the testing schedule a minimum 72 hours prior to testing. The City must be present to observe the testing.
3. Submit copies of all test results whether tests pass or fail. Lack of acceptable test results and documentation is justification to delay payment. Make corrections to the system as needed so that all tests ultimately pass.
4. Include the following in the submitted test reports:
 - (a) Project name and project number.
 - (b) Results of tests performed.
 - (c) Comparison of the test results to the project specifications. Conclusion as to meeting or failing to meet the project specifications.
 - (d) If failing, submit plan for corrective action.
 - (e) If failing, retest until tests pass to confirm compliance with the project specifications.

B. Hydrostatic Testing of Watermains:

1. Test each valved section to a separate two hour pressure test and the leakage test prescribed herein.
2. Close hydrants but leave hydrant valves and dead end line valves open during the test. Test service lines with curb stops open against a capped extension.
3. After testing is complete, close valves on hydrant leads and dead end water lines and open the hydrants. Apply the specified test pressure and test repeatedly for 15 minutes to establish the condition of the hydrant lead valves.
4. Chlorinate, test and flush watermain separate from the active system. Include filling and flushing work in the bid.

5. Furnish the pump, pipe connections, gauges, and measuring equipment. Perform testing in the presence of the City. Use an Ashcroft Model 1082 pressure gauge, with 4 ½" dial face at 1 psi increments, for the test. Where permanent air vents are not present, provide and install corporation cocks at the high points as needed for release of air as the line is filled with water.
 6. Where concrete reaction blocking is placed, wait at least 5 calendar days after concrete placement before applying the hydrostatic pressure test.
 7. If approved by the City, the pressure and leakage tests may be conducted simultaneously. Correct any defective joints, pipe, fittings, valves, or hydrants revealed during the testing or before final acceptance of the work. Repeat tests until the specified requirements have been met.
 - (a) Slowly fill the section being tested with water and apply the specified test pressure after all air has been expelled from the pipe. The specified test pressure is 150 pounds per square inch, gauge pressure, measured at the lowest point of elevation.
 - (b) Check the gauge pressure after a minimum of two hours. A pressure drop of 1 psi or less over a 2 hour period will be considered acceptance for the test section. If the pressure drop is greater than 1 psi, investigate the cause and take corrective action. Make every effort to expel all air in the test section which may be causing a test failure. This may require the Contractor to tap a corporation at a high point of the main on the top of the pipe to release trapped air.
 - (c) Perform the leakage test to determine the magnitude of the leak. However, meeting the leakage allowance may not constitute acceptance a failed pressure test.
 - (d) Test service pipes in conjunction with the main line testing. Services may be tested separately at 100 psi, with the corporation stops open.
 - (e) Perform additional pressure testing if, during the flushing operation, there is evidence of debris being flushed out of the system.
- C. Leakage Test:
1. After an unsatisfactory pressure test, perform a leakage test to determine the quantity of water that must be supplied into the section to maintain a test pressure of 150 pounds per square inch, after the air in the pipeline has been expelled. Record the water added to the nearest fluid ounce.
 2. Apply a pressure of 150 psi after filling the pipe with water and expelling all air in the line. In the same manner as prescribed for the pressure test, add sufficient water and measure water added into the pipe section to maintain the pressure for a test duration of 2 hours.

3. Leakage test will be considered passing if the leakage does not exceed the quantity determined by the formula as shown below, based on an allowable leakage of 11.65 gpd/mile/nominal diameter inch at 150 psi.

$$L = \frac{SD\sqrt{P}}{133,200}$$

L = Maximum permissible leakage in gallons per hour

S = Length of pipe tested

D = Nominal diameter of pipe in inches

P = Average test pressure during the test, in pounds per square inch, gauge pressure

ALLOWABLE LEAKAGE PER 1000 FEET OF PIPE										
in Gallons Per Hour										
Average Test Pressure (psi)	4"	6"	8"	10"	12"	14"	16"	18"	20"	22"
200	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55
175	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38
150	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21
125	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01
100	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80
70	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.26	1.51

- (a) If the pipe section under test contains pipe of various diameters, the allowable leakage will be the sum of the computed leakage for each size.
- (b) Furnish a written leakage test results report. Identify the specific test section, the average pressure, the duration of test, and the amount of leakage in the submitted report.

3.9 OPERATIONAL INSPECTION:

- A. Prior to Substantial Completion and prior to the punch list, inspect and operate all valves and hydrants, in the presence of the City, to demonstrate to City staff that the entire facility is in good working order. Specific items to be inspected include:

1. Services are marked

3.10 CLEANING AND PROTECTION

- A. Protect complete water utility system from damage, debris and sedimentation until final acceptance.
- B. Clean hydrants, valve boxes, and other miscellaneous appurtenances prior to testing and as needed prior to final acceptance of the project. Water utility system shall be free of silt, debris, and other obstructions at time of final acceptance.

- C. Maintain pavement subgrades until final pavement preparation commences. Maintain subgrade until the start of surface construction or restoration work. Provide and shape additional materials as needed to compensate for trench settlement.
- D. Cleaning the Site:
 - 1. Remove excess earth, excess construction materials, construction equipment, and construction debris which is related to this work from site at completion of work.
 - 2. Remove and dispose of all debris, waste materials, and other remains or consequences of construction, prior to final acceptance of all work. Remove all excess materials and scrap materials from the construction site.

3.11 AS-BUILT SURVEY

- A. Submit an as-built survey.
- B. Refer to Section 01 71 23 - Field Engineering for requirements.

END OF SECTION 33 10 00

SECTION 33 30 00

SANITARY SEWERAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
 - 1. Surveying for sanitary sewer systems.
 - 2. Sanitary sewer systems as indicated on Drawings.
 - 3. Excavation, backfill, and compaction related to sanitary sewer and structure installation.
 - 4. Pipe, backfill materials, and structures for complete sewer system.
 - 5. Protection of the completed system against sedimentation during subsequent construction activities and through turf establishment as noted herein.
 - 6. Precast Concrete Sewer Structures (manholes) and related frames, castings, grates, lids, and other materials.
 - 7. Rubber boot connections at Concrete Sewer Structures.
 - 8. Adjusting all structure castings and grates to finish grade.
 - 9. Foam Insulation construction.
 - 10. As-Built Survey is required and shall be provided by the Contractor.
- B. Work under this Section is affected by an Alternate Bid. Refer to Section 01 23 00 - Description of Alternates.

1.2 APPLICABLE DOCUMENTS

- A. All work shall comply with the requirements of the Department of Labor and Industry and the rules and regulations identified in the Minnesota Plumbing Code.

1.3 SITE CONDITIONS

- A. Maintain benchmarks, monuments, and other reference points. If disturbed or destroyed, have them replaced or relocated by a registered land surveyor at the Contractor's expense.

1.4 SUBMITTALS

- A. Submit information and shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information and shop drawings:
 - 1. Product Information:
 - (a) Pipe
 - (b) Rubber boots
 - (c) Castings, Lids, and Grates
 - (d) Adjusting Rings
 - (e) Foam Insulation
 - 2. Shop Drawings:
 - (a) Concrete structures

C. Submit the following Test Results:

1. Air pressure
2. Deflection
3. Visual Inspection
4. Televising

D. Submit an As-Built survey.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All materials required for this work shall be new material conforming to requirements of the referenced specifications for the class, kind, type, size, grade, and other details indicated in the Contract.
- B. All manufactured products shall conform in detail to such standard design drawings as may be referenced or furnished in the Plans.

2.2 PIPE

A. Gravity Pipe and Joints:

1. PVC (Polyvinyl Chloride) Pipe:

(a) ASTM Specifications D3034, SDR 26.

(1) Joints shall conform to the requirements of ASTM D-1869 for PVC pipe.

(2) PVC pipe joints shall be the bell and spigot type using rubber, gasketed, push-on type joints.

(b) ASTM D2665, Schedule 40 with solvent weld joints.

(1) Joints shall conform to the requirements of ASTM D2564.

2.3 PRECAST CONCRETE SEWER STRUCTURES:

- A. Precast concrete riser sections and appurtenant units (grade rings, top and base slabs, special sections, etc.) used in the construction of sanitary sewer structures shall conform with the requirements of ASTM C 478, Mn/DOT 2506 and the following supplementary provisions:
 1. The precast sections and appurtenant units shall conform to all requirements as shown on the Drawings.
 2. Joints of sewer structure riser sections shall be tongue and groove with rubber "O" ring or profile gaskets.
 3. Air entrained concrete shall be used in the production of all units. Air content shall be maintained within the range of five (5) to seven (7) percent (%).
 4. Sanitary sewer inlet and outlet pipes shall be joined to the manhole with a gasketed, flexible, watertight connection, watertight boot, or any watertight connection arrangement allowed by Mn Plumbing Code that allows differential settlement of the pipe and manhole wall to take place.
 5. Lift holes will not be permitted in precast manholes.

2.4 CASTINGS:

- A. Cast iron. Metal used in casting manufacturing shall be ASTM-A-48, Class 35B gray iron or ASTM A536 grade 80-55-06 for ductile iron.
- B. Shall be smooth and well cleaned by shotblasting.
- C. Castings shall not be painted.

- D. The standard manhole casting shall have two concealed pick holes. Castings shall be stamped "SANITARY SEWER".
- E. Round covers and grates shall fit closely in the frame and, when placed and rotated in the frame, shall fit the frame solidly so that there will be no rocking from pressure on any point of the cover.
- F. Approved Manufacturers:
 - 1. Neenah Foundry, 2121 Brooks Avenue, Neenah, WI 54956, Phone: (920) 725-7000.
 - (a) Available locally through Ess Brothers, Loretto, MN, phone (800) 478-2027.
 - (b) Available locally through Neenah Foundry, Shakopee, MN, phone (952) 445-5335
 - 2. Or approved equal.

2.5 STRUCTURE STEPS FOR CONCRETE STRUCTURES:

- A. Copolymer polypropylene meeting with the requirements of ASTM 2146, Type II, Grade 49108, reinforced with a deformed 3/8 inch diameter reinforcing bar which conforms to the requirements of ASTM A-615, Grade 60.

2.6 ADJUSTING RINGS FOR CONCRETE STRUCTURES:

- A. High Density Polyethylene (HDPE) produced by Ladtech, or approved equal.
 - 1. Joints between structure, rings, and casting shall be sealed with a Butyl caulk.

2.7 EXTERNAL FRAME SEAL:

- A. Frame seals shall consist of a flexible external rubber sleeve, interlocking extensions and stainless steel compression bands as manufactured by Cretex Specialty Products, or approved equal, conforming to the following requirements.
 - 1. The seal shall remain flexible throughout a 25 year design life, allowing repeated vertical movement of the frame of not less than 2 inches and/or repeated horizontal movement of not less than ½ inch.
 - 2. The sleeve portion of the seal shall be corrugated with a minimum unexpanded vertical height of either 6 inches or 9 inches and shall be capable of being mechanically locked to the structure frame.
 - 3. The sleeve and extension shall have a minimum thickness of 3/16 inches and shall be made from a high-quality rubber compound conforming to the applicable requirements of ASTM C-923, with a minimum 1500 psi tensile strength, a maximum 18% compression set and hardness (durometer) of 48+/-5 DURO.
 - 4. The bands shall be integrally formed from 16 gauge stainless steel conforming to ASTM A-240, Type 304, with no welded attachments and shall have a minimum adjustment range of 2 diameter inches.
 - 5. Any screws, bolts or nuts used on this band shall be stainless steel conforming to ASTM F-593 and 594, Type 304.
- B. All castings, rings, and adjustments shall include furnishing and installing an external seal on all manholes. The permanent seal shall externally seal the adjustment ring area and joint sections of the manhole.
- C. The seal shall include an integral seal with the casting assembly and structure joint below the adjustment rings.

2.8 BEDDING AND BACKFILL MATERIAL

- A. Materials shall be in accordance with Section 31 23 33 Trenching and Backfilling.

2.9

FOAM INSULATION:

- A. Closed cell foam insulation designed for use in low-temperature applications, highways, airports, and similar.
- B. Compressive Strength, ASTM D1621, 100 psi, min.
- C. Water Absorption, ASTM C272, 0.1% by volume, max., in 24 hour water immersion.
- D. Approved products:
 - 1. Styrofoam™ Brand Highload Extruded Polystyrene (XPS) Foam Insulation, manufactured by DuPont™, phone (833) 338-7668. Find a local supplier at <http://www.dupont.com/building/dealer-locator.html>
 - 2. Or equal.

PART 3 - EXECUTION

3.1 CONSTRUCTION STAKING AND FIELD ENGINEERING

- A. Refer to Section 01 71 23 Field Engineering for requirements.

3.2 INSPECTION AND RESPONSIBILITY OF MATERIALS

- A. Inspect all materials for damage. Promptly remove all damaged material from the site.

3.3 TRENCH EXCAVATION, BACKFILL, COMPACTION, AND DEWATERING

- A. Work shall be in accordance with the provisions of Section 31 23 33 Trenching and Backfilling.

3.4 INSTALLATION OF SANITARY SEWERAGE SYSTEM

A. Dewatering:

- 1. Provide dewatering, temporary diversion berms, and drainage swales to divert water away from excavations. Provide dewatering of trench excavations.
- 2. Drain discharge water to natural drainage channels or to storm sewers. Remove sediment and suspended materials from discharged water as specified in Section 31 00 00 Earthwork under Dewatering.
- 3. No pipe or fittings shall be laid in water or when trench conditions are unsuitable for work.
- 4. Provide labor and materials necessary to control erosion at outfall and downstream of dewatering pipe.
- 5. Comply with dewatering requirements identified in Section 31 00 00 Earthwork.

B. Trenching:

- 1. Excavate to depth and width necessary for utility construction. Excavation width shall not exceed the outside diameter of pipe plus 24 inches.
- 2. Excavate to proper elevation and establish trench foundation.
- 3. Place excavated material on one side of trench, unless conditions are prohibitive. Excavated material shall be so placed as not to obstruct any site drainage pattern.
- 4. Excavate trench in advance of utility installation, but do not excavate trenches beyond the installation limits for the day.
- 5. Slope and brace sides of trenches so that workers can work safely and efficiently.

C. Installing Piping and Appurtenances:

1. General Requirements:

- (a) The primary line and grade shall be established by a registered Land Surveyor employed by the Contractor. No deviation from the required line or grade will be allowed except with the consent of the Engineer.
- (b) Provide and use the proper implements, tools, and facilities for the safe and convenient prosecution of work.
- (c) Carefully unload and distribute materials at site carefully to prevent materials from being damaged, minimize handling, and not hamper construction activities. Do not throw or dump materials from the truck.
- (d) Before being lowered into laying position, thoroughly inspect each pipe section and appurtenant units to detect damage, foreign matter needing removal, or unsound conditions that may need corrective action or be cause for rejection.
- (e) Immediately before placement, inspect joint surfaces of each pipe section and fitting for the presence of foreign matter, coating blisters, rough edges, or projections. Clean, trim, or repair any imperfections as needed.
- (f) Where pipe cutting is required, cut pipe square and deburr pipe ends.
- (g) Carefully lower pipe into trench to prevent damage to pipe and protective coatings and linings. Do not throw, drop, or dump materials into trench.
- (h) Provide, without additional compensation, suitable temporary channels for water that flows along or across site and is restricted by work.
- (i) Place excavated material on one side of trench. Place excavated material so as not to obstruct any site drainage pattern.
- (j) Whenever existing utility structures, branch connections, conduits, ducts, pipes, or structures present obstructions to the grade and alignment of the pipe, they shall be permanently supported, removed, relocated, or reconstructed.
- (k) Securely close all pipe openings at the suspension of work at any time, and place suitable stoppers to prevent earth or any substance from entering the pipe. If water is present in the trench, the stoppers shall remain in place until the trench is completely dry.
- (l) If unstable soil or soil not suitable for bedding of pipe or for trench backfill is encountered, notify Engineer before proceeding with pipe installation. Remove and replace unsuitable or unstable material with pipe stabilization material as specified in Section 31 23 33 Trenching and Backfilling.
- (m) Material for stabilization and bedding shall be as specified in Section 31 23 33 Trenching and Backfilling. Type of material to be used shall be approved by the Testing Laboratory representative. Use stabilization material for pipe bedding and trench backfill wherever peat, clay or other unsuitable bearing material is encountered. Place material to a depth as determined by the Testing Laboratory representative, with a minimum depth of 6 inches below bottom of pipe and extending at least 1 foot beyond sides of pipe and 1 foot above pipe.

2. Gravity Pipe Installation:

- (a) Install Pipe on a continuous, well compacted, granular bed in accordance with ASTM D2321.
 - (1) Excavate to proper elevation and establish trench foundation. Excavation for pipe shall have 1-foot minimum clearance on each side.
 - (2) Place pipe bedding materials uniformly over trench foundation. Place soils in a loose condition to allow bedding soils to form to the shape of the pipe.

- (b) Wipe the outside of the spigot and the inside of the bell clean and dry. Pipe ends shall be kept clean until joints are made.
- (c) Lay all pipes using laser equipment to set pipe grade and alignment. Laser equipment shall digitally display slope to the nearest 1/100%. Check the grades at a frequency not to exceed 100 feet. Provide competent workers to operate the laser equipment.
- (d) Lay bell and spigot pipe with the bell ends facing upgrade. Pipe laying shall start on the downgrade end and proceed upgrade. As each length of bell and spigot pipe is placed in laying position, center the spigot end in the bell and force the pipe home and bring to correct line and grade. Secure the pipe in place with approved backfill material, and thoroughly compact backfill by tamping around the pipe to a height of at least 12 inches above the top of pipe. Use hand operated mechanical tamping devices for compacting around the pipe. Keep joint areas exposed. Prevent soil from entering the joint space until the joint seal is complete. Backfill in the bell area shall be left loose.
- (e) Connect new pipe to existing pipe, or connect new pipe to structures in accordance with the requirements of the Minnesota Plumbing Code. Where necessary to make satisfactory closure or produce the required curvature, grade, or alignment, deflections at joints shall not exceed that which will assure tight joints and comply with any limitations recommended by the pipe manufacturer.
- (f) PVC Schedule 40 pipe joints:
 - (1) After the inside and outside of joint surfaces are cleaned and free from dirt, moisture, oil, burs, and other foreign material, solvent weld joints in accordance with ASTM D2564.
 - (2) Apply primer and glue to inside and outside of joint surfaces.
 - (3) Construct joints using primer and solvent weld in accordance with ASTM D2855.
- (g) Connections:
 - (1) Make connection to an existing sanitary sewer manhole, where an opening for the proposed sewer pipe does not exist, as follows:
 - a. Core drill an opening of the correct size and elevation for the proposed sanitary sewer pipe.
 - b. Set the connecting pipe through the full thickness of the wall flush with the inner face of the wall.
 - c. Connect to the structure with a rubber boot.
 - d. Ensure the flow lines inside the manhole are constructed in a manner to provide steady flow from all inlet pipes towards the outlet pipe. Reconstruct the structure invert as required. Grout the flow line and the core drilled hole smooth.
 - e. Install a plug in the connecting pipe once the connection is complete and construction has advanced to the next manhole to prevent rainwater or sediment from entering the existing system. Remove all plugs once all proposed sanitary sewer pipes on the project have been installed, tested, inspected, and approved.

D. Backfilling Procedures:

- 1. Backfill trenches to original ground surface outside of proposed grading limits or to subgrade elevation within proposed grading limits. Place backfill as soon as practical after pipe installation.
- 2. After pipe is placed on bedding, place haunch zone bedding soils below pipe springline in maximum 8-inch lifts and shovel slice soils for each lift into the haunch zone. Compact haunch zone bedding soils with a walk behind vibratory compactor uniformly on each side of the pipe making a minimum of 2 passes.

3. Above the pipe springline, place initial backfill to 12" above the pipe. Compact initial backfill soils with a walk behind vibratory compactor uniformly on each side of the pipe making a minimum of 2 passes.
 4. Place pipe bedding material in trench simultaneously on both sides of pipe for full width of trench and to a minimum height of 12 inches above top of pipe. Shovel place and hand tamp backfill material to fill spaces under and adjacent to pipe completely. Place pipe bedding material from the bottom of trench to 12 inches above top of pipe by either hand or mechanical methods in 2 lifts. The first lift shall be from trench bottom to pipe springline. Compact the first lift by hand or walk behind type vibrating compactor. Compact the second lift with a walk behind vibrating compactor making a minimum of 2 passes.
 5. If the native trench material is unsuitable for any portion of trench backfill, it will be considered surplus material and shall be disposed of off-site, unless otherwise approved by the Engineer. Make a reasonable attempt during the excavation operations to segregate unsuitable materials encountered from suitable materials. Furnish and install additional suitable material needed for backfilling. Backfill shall be sand-gravel or binder stone material as described in Section 31 23 33 Trenching and Backfilling.
- E. Compact trench backfill in accordance with density requirements established in Section 31 00 00 Earthwork.

3.5 FOAM INSULATION INSTALLATION

- A. Place foam on uniformly graded sand base over the top of the sanitary sewer. Tolerance of sand base shall be 1/4 inch.
- B. Abut ends of foam together. Foam shall not have any gaps larger than 1/2 inch.
- C. Remaining sand base materials shall be spread over foam. Do not drive power operated equipment over foam. Push materials over foam or spread with backhoe or similar equipment.
- D. Protect foam during construction.
- E. Remove and replace foam panels that become cracked or damaged.

3.6 CONCRETE STRUCTURE INSTALLATION

- A. Construct sanitary sewer structures as noted on the Drawings.
- B. Unless otherwise specified or approved, construct structures with precast concrete integral base with pre-formed invert barrel section and with watertight boots at all pipe locations. Barrel riser sections and cone sections shall be constructed of precast concrete. All sections shall be properly fitted and sealed to form a completely watertight structure. Fabricate structures to provide a twelve inch tall or sixteen inch tall barrel section immediately below the cone or top slab whenever possible.
- C. Place at least two and not more than five adjusting rings immediately below the casting assembly. Adjust barrel and cone height to accommodate the adjusting rings. Wrap adjusting rings and casting flange with a Type 2 Geotextile fabric meeting MnDOT 3733.
 1. The rings shall provide a minimum adjustment of 4" using 2" rings and maximum adjustment of 12" with a 6" thick ring used for adjustments of 8" or greater.
 2. Provide grout along the outside of the ring assembly.
- D. External Frame Seals shall be installed per manufacturer's instructions.
- E. Unless otherwise specified or approved, sanitary sewer structures shall have an inside barrel diameter at the bottom of forty-eight inches minimum and the inside diameter at the top of the cone section and all adjusting rings shall be of the same size and shape as the casting frame. Refer to the Drawings for casting assemblies.
- F. Shape the soil for proper elevation and allow the structure to be vertically plumb. Install the structure base on undisturbed or firmly compacted foundation material.

- G. Above the integral base section, all other riser section joints shall be tongue and groove design. Seal all tongue and groove joints with rubber gaskets. The concrete base under an outside drop connection shall be monolithic with the sanitary sewer structure base.

3.7 CASTINGS AND GRATES

- A. Securely fasten casting and grates to adjoining structures to prevent removal.

3.8 ADJUSTING

- A. Correct imperfections and irregularities in work at no additional expense to the Owner.

3.9 CASTING ADJUSTMENTS

- A. All castings within the construction limits shall be adjusted to a height between $\frac{1}{4}$ inch to $\frac{1}{2}$ inch below the final pavement course or landscape / grass elevation. This allowable tolerance shall be uniform around the periphery of each casting. Adjust all castings which do not meet this tolerance at no additional cost to the Owner.
- B. Adjust castings using only concrete or metal shims for final adjustment and leveling. Set all castings on a full mortar bed.
- C. Temporarily fasten a template of plywood to the top of each casting during paving and rolling of the final asphalt pavement course to ensure the specified tolerances are met.
- D. Include costs for casting adjustments in the bid. No additional costs for casting adjustments will be permitted.

3.10 SANITARY SEWER TESTING

- A. In accordance with the Minnesota Plumbing Code, test all portions of sanitary sewer systems.
- B. Test concrete structures by using negative pressure in accordance with ASTM Standard C1244-93.
- C. Gravity Sewer Testing:
 - 1. Test PVC piping using a low pressure air test.
 - (a) Perform tests with equipment similar to Air-Loc equipment manufactured by Cherne Industrial, Inc., Hopkins, Minnesota.
 - (b) Perform the air test when the sewer is clean. Plug each end of the system to be tested with pneumatic balls. Introduce low pressure air into the plugged line until the internal air pressure reaches 5.0 psi greater than the average back pressure of any ground water pressure that may submerge the pipe. Allow at least two minutes for the air temperature inside the pressurized pipe to stabilize before starting the timer and taking readings.
 - (c) Minnesota Plumbing Code requires the pressure to remain constant for at least 15 minutes without adding more air. The air test will be considered acceptable upon completion of this test.
 - 2. Deflection Test
 - (a) Measure the deflection of PVC sewer pipe after placement of backfill material in the trench. Test pipe deflection at least 30 days, but not later than 1 year, following backfilling and compaction of the pipe trench. The Owner reserves the right to measure deflection of PVC sewer pipe at any time during the warranty period. Deflections greater than 5% of the inside pipe diameter will be considered failure and correction by reconstruction will be required.
 - 3. Visual Inspection
 - (a) Prior to final acceptance, flush a ball, the full diameter of the sewer pipe, through the sewer system. Install watertight plugs or other suitable methods to prevent dirt and debris from entering the sewer system.

- (b) Sewer pipes shall be straight and uniform in alignment and grade. Pipe shall be free of dirt, mortar and other debris.

4. Televising

- (a) Televising the sewer after completion of pipe construction, backfilling and compaction operations, and stabilized aggregate base is installed in pavement areas.
- (b) Mount the television camera on a skid so it is centered in the pipe. The camera shall have a cross-hair to maintain a constant reference on the image. Equip the camera with sufficient lights to completely illuminate the interior of the pipe within the range of the camera.
- (c) Provide a monitor to allow multiple persons to view the picture simultaneously. Combine the television camera, transmitting equipment, and monitoring equipment to provide a picture on the monitor screen free from distortion and clear enough to distinguish between hairline cracks, "pipe marks," etc.
- (d) Record the footage of pipe televised. A copy of the recording shall be given to the Owner, City, and Engineer within one week following the last day of televising on the project. Integrate the linear footage of pipe televised into the recording for ease of identification of pipe being viewed. Provide a diagram of the project with televising indexed on it within five (5) working days following the last day of televising on the project.

D. Test Failure and Remedy

- 1. In the event of test failure on any test section, correct the failures. Continue testing until all tests pass. Correct detected leakage to meet the requirements. All repair work shall be subject to approval of the Engineer. Introduction of sealant substances will not be permitted.
- 2. Unsatisfactory repairs or test results will result in removal and placement as the Engineer considers necessary. All repair and replacement work will be at the Contractor's expense.
- 3. Remove and replace any cracked or broken pipe. Leave the sewer system clean and free from any obstructions or debris.

3.11 CLEANING AND PROTECTION

- A. Protect complete sewer system from damage, debris and sedimentation until final acceptance.
- B. Clean sewer lines prior to testing and as needed prior to final acceptance of the project. Give the City a minimum of 72 hours' notice prior to flushing. Sewer system shall be free of silt, debris, and other obstructions at time of final acceptance.
- C. Pipe and structures shall be free of dirt, mortar, and other debris.
- D. Maintain pavement subgrades until final pavement preparation commences. Maintain subgrade until the start of surface construction or restoration work. Provide and shape additional materials as needed to compensate for trench settlement.
- E. Cleaning the Site:
 - 1. Remove excess earth, excess construction materials, construction equipment, and construction debris which is related to this work from site at completion of work.
 - 2. Remove and dispose of all debris, waste materials, and other remains or consequences of construction, prior to final acceptance of all work. Remove all excess materials and scrap materials from the construction site.

3.12 AS-BUILT SURVEY

- A. Submit an as-built survey.
- B. Refer to Section 01 71 23 - Field Engineering for requirements.

END OF SECTION 33 30 00

SECTION 33 40 00

STORMWATER UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes labor, materials, equipment, and accessories to provide the following:
1. Surveying for storm sewer systems.
 2. Storm sewer system as indicated on Drawings.
 3. Excavation, backfill, and compaction related to storm sewer and drainage structure installation.
 4. Pipe, backfill materials, and structures for complete drainage system.
 5. Protection of the completed system against sedimentation during subsequent construction activities and through turf establishment as noted herein.
 6. Furnishing, installing, maintaining, and removing inlet protection devices at storm sewer inlets.
 7. Cast-in-place concrete associated with the system.
 8. Precast Concrete Storm Sewer Structures (manholes, catch basins), and related frames, castings, grates, lids, covers, and other materials.
 9. PVC structures and related frames, castings, grades, lids, and covers.
 10. Flexible Joints at pipe connections to concrete structures per Mn Plumbing Code.
 11. Subsurface drains and connection to the storm sewer system.
 12. Adjusting all structure castings and grates to finish grade.
 13. As-Built Survey is required and shall be provided by the Contractor.

1.2 APPLICABLE DOCUMENTS

- A. All work shall comply with the requirements of the Department of Labor and Industry and the rules and regulations identified in the Minnesota Plumbing Code.

1.3 SITE CONDITIONS

- A. Maintain benchmarks, monuments, and other reference points. If disturbed or destroyed, have replaced or relocated by a registered land surveyor at the Contractor's expense.

1.4 SUBMITTALS

- A. Submit information and shop drawings in accordance with Section 01 33 00 – Submittal Procedures.
- B. Submit the following product information and shop drawings:
1. Product Information:
 - (a) Pipe
 - (b) Flexible Joints
 - (c) Castings, Lids, and Grates
 - (d) Adjusting Rings
 2. Shop Drawings:
 - (a) Concrete structures

- (b) PVC structures
- C. Submit the following Test Results:
 - 1. Air pressure
 - 2. Deflection
 - 3. Visual Inspection
 - 4. Televising
- D. Submit an As-Built survey.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All materials required for this work shall be new material conforming to requirements of the referenced specifications for the class, kind, type, size, grade, and other details indicated in the Contract.
- B. All manufactured products shall conform in detail to such standard design drawings as may be referenced or furnished in the Plans.

2.2 PIPE

A. Storm Sewer Pipe:

1. PVC (Polyvinyl Chloride) Pipe:

- (a) For pipe sizes less than 18": ASTM Specifications D3034, SDR 35.
 - (1) Joints shall conform to the requirements of ASTM D-1869 for PVC pipe.
 - (2) PVC pipe joints shall be the bell and spigot type using rubber, gasketed, push-on type joints.
- (b) For pipe sizes 18 inches and larger: ASTM Specifications F794.
 - (1) Joints shall conform to the requirements of ASTM D-1869 for PVC pipe.
 - (2) PVC pipe joints shall be the bell and spigot type using rubber, gasketed, push-on type joints.
- (c) PVC Pipe meeting ASTM D2665, Schedule 40.
 - (1) Solvent weld joints conforming to the requirements of ASTM D2564.

2.3 FLEXIBLE JOINTS AT CONCRETE STRUCTURE CONNECTIONS:

- A. In accordance with Minnesota Plumbing Code, provide Flexible Joints at all pipe connections to all concrete structures.
- B. Acceptable manufacturers / products:
 - 1. Fernco, "Concrete Manhole Adapters" or "Large-Diameter Waterstops"
 - 2. Press-Seal, Waterstop Grouting Rings"
 - 3. Or approved equal.

2.4 PRECAST CONCRETE STORM SEWER STRUCTURES:

- A. Precast concrete riser sections and appurtenant units (grade rings, top and base slabs, special sections, etc.) used in the construction of storm sewer structures shall conform with the requirements of ASTM C 478, Mn/DOT 2506 and the following supplementary provisions:
 - 1. The precast sections and appurtenant units shall conform to all requirements as shown on the Drawings.

2. Joints of storm sewer structure riser sections shall be tongue and groove with rubber "O" ring or profile gaskets.
3. Air entrained concrete shall be used in the production of all units. Air content shall be maintained within the range of five (5) to seven (7) percent (%).

2.5 CASTINGS FOR CONCRETE STRUCTURES:

- A. Cast iron. Metal used in casting manufacturing shall be ASTM-A-48, Class 35B gray iron or ASTM A536 grade 80-55-06 for ductile iron.
- B. Shall be smooth and well cleaned by shotblasting.
- C. Castings shall not be painted.
- D. The standard manhole casting shall have two concealed pick holes. Castings shall be stamped "STORM SEWER".
- E. Round covers and grates shall fit closely in the frame and, when placed and rotated in the frame, shall fit the frame solidly so that there will be no rocking from pressure on any point of the cover.
- F. Approved Manufacturers:
 1. Neenah Foundry, 2121 Brooks Avenue, Neenah, WI 54956, Phone: (920) 725-7000.
 - (a) Available locally through Ess Brothers, Loretto, MN, phone (800) 478-2027.
 - (b) Available locally through Neenah Foundry, Shakopee, MN, phone (952) 445-5335
 2. Or approved equal.

2.6 PVC STRUCTURES:

- A. The structure and drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system.
 1. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477.
- B. The grates and frames furnished for the structures shall be ductile iron for the size indicated on the plans and shall be made specifically for each structure so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet.
 1. Metal used in the manufacture of the castings shall conform to ASTM A536 grade 70 50 05 or 80 55 06 for ductile iron.
- C. Approved products:
 1. Advanced Drainage Systems, Buford, GA, (770-932-2443), Model Nyloplast® Drain Basin.
 2. Harco Fittings LLC, Lynchburg, VA, (800-825-7094), Model Drain Basin.
 3. Or approved equal.

2.7 STRUCTURE STEPS FOR CONCRETE STRUCTURES:

- A. Copolymer polypropylene meeting with the requirements of ASTM 2146, Type II, Grade 49108, reinforced with a deformed 3/8 inch diameter reinforcing bar which conforms to the requirements of ASTM A-615, Grade 60.

2.8 ADJUSTING RINGS FOR CONCRETE STRUCTURES:

- A. High density polyethylene (HDPE) adjusting rings.
 1. Molded high-density polyethylene conforming to ASTM D1248.
 2. Use the largest thickness available to avoid joints between rings.

3. Joints between structure, rings, and casting shall be sealed with a Butyl caulk.

2.9 EXTERNAL FRAME SEAL

- A. Frame seals shall consist of a flexible external rubber sleeve, interlocking extensions and stainless steel compression bands as manufactured by Cretex Specialty Products, or approved equal, conforming to the following requirements.
 1. The seal shall remain flexible throughout a 25 year design life, allowing repeated vertical movement of the frame of not less than 2 inches and/or repeated horizontal movement of not less than ½ inch.
 2. The sleeve portion of the seal shall be corrugated with a minimum unexpanded vertical height of either 6 inches or 9 inches and shall be capable of being mechanically locked to the structure frame.
 3. The sleeve and extension shall have a minimum thickness of 3/16 inches and shall be made from a high quality rubber compound conforming to the applicable requirements of ASTM C-923, with a minimum 1500 psi tensile strength, a maximum 18% compression set and hardness (durometer) of 48+/-5 DURO.
 4. The bands shall be integrally formed from 16 gauge stainless steel conforming to ASTM A-240, Type 304, with no welded attachments and shall have a minimum adjustment range of 2 diameter inches.
 5. Any screws, bolts or nuts used on this band shall be stainless steel conforming to ASTM F-593 and 594, Type 304.
- B. All castings, rings, and adjustments shall include furnishing and installing an external seal on all manholes. The permanent seal shall externally seal the adjustment ring area and joint sections of the manhole.
- C. The seal shall include an integral seal with the casting assembly and structure joint below the adjustment rings.

2.10 INLET PROTECTION DEVICES AT STORM SEWER INLETS:

- A. Refer to Section 31 25 00 Erosion Control.

2.11 CONCRETE

- A. 4,000 psi air-entrained concrete, meeting requirements of ACI 301.

2.12 BEDDING AND BACKFILL MATERIAL

- A. Materials shall be in accordance with Section 31 23 33 Trenching and Backfilling.

PART 3 - EXECUTION

3.1 CONSTRUCTION STAKING AND FIELD ENGINEERING

- A. Refer to Section 01 71 23 Field Engineering for requirements.

3.2 INSPECTION AND RESPONSIBILITY OF MATERIALS

- A. Inspect all materials for damage. Promptly remove all damaged material from the site.

3.3 TRENCH EXCAVATION, BACKFILL, COMPACTION, AND DEWATERING

- A. Work shall be in accordance with the provisions of Section 31 23 33 Trenching and Backfilling.

3.4 INSTALLATION OF STORM SEWER SYSTEM

- A. Dewatering:
 1. Provide dewatering, temporary diversion berms, and drainage swales to divert water away from excavations. Provide dewatering of trench excavations.
 2. Drain discharge water to natural drainage channels or to storm sewers. Remove sediment and suspended materials from discharged water as specified in Section 31 00 00 Earthwork under Dewatering.

3. No pipe or fittings shall be laid in water or when trench conditions are unsuitable for work.
 4. Provide labor and materials necessary to control erosion at outfall and downstream of dewatering pipe.
 5. Comply with dewatering requirements identified in Section 31 00 00 Earthwork.
- B. Trenching:
1. Excavate to depth and width necessary for utility construction. Excavation width shall not exceed the outside diameter of pipe plus 24 inches.
 2. Excavate to proper elevation and establish trench foundation.
 3. Place excavated material on one side of trench, unless conditions are prohibitive. Excavated material shall be so placed as not to obstruct any site drainage pattern.
 4. Excavate trench in advance of utility installation, but do not excavate trenches beyond the installation limits for the day.
 5. Slope and brace sides of trenches so that workers can work safely and efficiently.
- C. Installing Piping and Appurtenances:
1. The primary line and grade shall be established by a registered Land Surveyor employed by the Contractor. No deviation from the required line or grade will be allowed except with the consent of the Engineer.
 2. Special provisions for PVC Pipe:
 - (a) Install Pipe on a continuous, well compacted, granular bed in accordance with ASTM D2321.
 - (1) Excavate to proper elevation and establish trench foundation. Excavation for pipe shall have 1-foot minimum clearance on each side.
 - (2) Place pipe bedding materials uniformly over trench foundation. Place soils in a loose condition to allow bedding soils to form to the shape of the pipe.
 - (b) PVC Schedule 40 pipe joints:
 - (1) After the inside and outside of joint surfaces are cleaned and free from dirt, moisture, oil, burs, and other foreign material, solvent weld joints in accordance with ASTM D2564.
 - (2) Apply primer and glue to inside and outside of joint surfaces.
 - (3) Construct joints using primer and solvent weld in accordance with ASTM D2855.
 3. Provide and use the proper implements, tools, and facilities for the safe and convenient prosecution of work.
 4. Carefully unload and distribute materials to prevent damage, to minimize handling, and to not hamper construction activities. Do not throw, drop, or dump materials.
 5. Before being lowered into laying position, thoroughly inspect each pipe section and appurtenant units to detect damage, foreign matter needing removal, or unsound conditions that may need corrective action or be cause for rejection.
 6. Immediately before placement, inspect joint surfaces of each pipe section and fitting for the presence of foreign matter, coating blisters, rough edges, or projections. Clean, trim, or repair any imperfections as needed. Wipe the outside of the spigot and the inside of the bell clean and dry. Pipe ends shall be kept clean until joints are made.
 7. Where pipe cutting is required, cut pipe square and deburr pipe ends.
 8. Carefully lower pipe into trench to prevent damage to pipe and protective coatings and linings. Do not throw, drop, or dump materials into trench.

9. Lay all pipes using laser equipment to set pipe grade and alignment. Laser equipment shall digitally display slope to the nearest 1/100%. Check the grades at a frequency not to exceed 100 feet. Provide competent workers to operate the laser equipment.
10. Provide, without additional compensation, suitable temporary channels for water that flows along or across site and is restricted by work.
11. Place excavated material on one side of trench. Place excavated material so as not to obstruct any site drainage pattern.
12. Whenever existing utility structures, branch connections, conduits, ducts, pipes, or structures present obstructions to the grade and alignment of the pipe, they shall be permanently supported, removed, relocated, or reconstructed.
13. Excavate to proper elevation and shape foundation to fit lower 1/4 of outside circumference of pipe. Dig bell holes at ends of each length of pipe to permit proper jointing. Excavation for structures shall have 1-foot minimum clearance on all sides.
14. At the time of pipe placement, the bedding conditions shall be such as to provide uniform and continuous support for the pipe between bell holes. Excavate bell holes as necessary to make the joint connections, but they shall be no larger than would be adequate.
15. Lay bell and spigot pipe with the bell ends facing upgrade. Pipe laying shall start on the downgrade end and proceed upgrade. As each length of bell and spigot pipe is placed in laying position, center the spigot end in the bell and force the pipe home and bring to correct line and grade. Secure the pipe in place with approved backfill material, and thoroughly compact backfill by tamping around the pipe to a height of at least 12 inches above the top of pipe. Use hand operated mechanical tamping devices for compacting around the pipe. Keep joint areas exposed. Prevent soil from entering the joint space until the joint seal is complete. Backfill in the bell area shall be left loose.
16. Connect new pipe to existing pipe, or connect new pipe to structures in accordance with the requirements of the Minnesota Plumbing Code. Where necessary to make satisfactory closure or produce the required curvature, grade, or alignment, deflections at joints shall not exceed that which will assure tight joints and comply with any limitations recommended by the pipe manufacturer.
17. Make connection to an existing storm sewer manhole, where an opening for the proposed sewer pipe does not exist, as follows:
 - (a) Core drill an opening of the correct size and elevation for the proposed storm sewer pipe.
 - (b) Set the connecting pipe through the full thickness of the wall flush with the inner face of the wall.
 - (c) Connect to the structure with a flexible joint.
 - (d) Ensure the flow lines inside the manhole are constructed in a manner to provide steady flow from all inlet pipes towards the outlet pipe. Reconstruct the structure invert as required. Grout the flow line and the core drilled hole smooth.
 - (e) Install a plug in the connecting pipe once the connection is complete and construction has advanced to the next manhole to prevent rainwater or sediment from entering the existing system. Remove all plugs once all proposed sewer pipes on the project have been installed, tested, inspected, and approved.
18. Securely close all pipe openings at the suspension of work at any time, and place suitable stoppers to prevent earth or any substance from entering the pipe. If water is present in the trench, the stoppers shall remain in place until the trench is completely dry.
19. If unstable soil or soil not suitable for bedding of pipe or for trench backfill is encountered, notify Engineer before proceeding with pipe installation. Remove and replace unsuitable or unstable material with pipe stabilization material as specified in Section 31 23 33 Trenching and Backfilling.

20. Material for stabilization and bedding shall be as specified in Section 31 23 33 Trenching and Backfilling. Type of material to be used shall be approved by the Testing Laboratory representative. Use stabilization material for pipe bedding and trench backfill wherever peat, clay or other unsuitable bearing material is encountered. Place material to a depth as determined by the Testing Laboratory representative, with a minimum depth of 6 inches below bottom of pipe and extending at least 1 foot beyond sides of pipe and 1 foot above pipe.

D. Backfilling Procedures:

1. Backfill trenches to original ground surface outside of proposed grading limits or to subgrade elevation within proposed grading limits. Place backfill as soon as practical after pipe installation.
2. Place pipe bedding material in trench simultaneously on both sides of pipe for full width of trench and to a minimum height of 12 inches above top of pipe. Shovel place and hand tamp backfill material to fill spaces under and adjacent to pipe completely. Place pipe bedding material from the bottom of trench to 12 inches above top of pipe by either hand or mechanical methods in 2 lifts. The first lift shall be from trench bottom to pipe springline. Compact the first lift by hand or walk behind vibrating compactor. Compact the second lift with a walk behind vibrating compactor making a minimum of 2 passes.

(a) Special provisions for PVC Pipe:

- (1) After pipe is placed on bedding, place haunch zone bedding soils below pipe springline in maximum 8-inch lifts and shovel slice soils for each lift into the haunch zone. Compact haunch zone bedding soils with a walk behind vibratory compactor uniformly on each side of the pipe making a minimum of 2 passes.
- (2) Above the pipe springline, place initial backfill to 12" above the pipe. Compact initial backfill soils with a walk behind vibratory compactor uniformly on each side of the pipe making a minimum of 2 passes.
3. If the native trench material is unsuitable for any portion of trench backfill, it will be considered surplus material and shall be disposed of off-site, unless otherwise approved by the Engineer. Make a reasonable attempt during the excavation operations to segregate unsuitable materials encountered from suitable materials. Furnish and install additional suitable material needed for backfilling. Backfill shall be sand-gravel or binder stone material as described in Section 31 23 33 Trenching and Backfilling.

E. Compact trench backfill in accordance with density requirements established in Section 31 00 00 Earthwork.

3.5 CONCRETE STRUCTURE INSTALLATION

- A. Construct storm sewer structures as noted on the Drawings. Provide erosion control as detailed on the Drawings.
- B. Unless otherwise specified or approved, construct structures on a precast or cast in place concrete base. Barrel riser sections and cone sections shall be constructed of precast concrete. All sections shall be properly fitted and sealed to form a completely watertight structure. Fabricate structures to provide a twelve inch tall or sixteen inch tall barrel section immediately below the cone or top slab whenever possible.
- C. Place at least two and not more than five adjusting rings immediately below the casting assembly. Adjust barrel and cone height to accommodate the adjusting rings. Wrap adjusting rings and casting flange with a Type 2 Geotextile fabric meeting MnDOT 3733.
 1. The rings shall provide a minimum adjustment of 4" using 2" rings and maximum adjustment of 12" with a 6" thick ring used for adjustments of 8" or greater.
 2. Provide grout along the outside of the ring assembly.
- D. External Frame Seals shall be installed per manufacturer's instructions.

- E. Unless otherwise specified or approved, storm sewer structures shall have an inside barrel diameter at the bottom of forty-eight inches minimum and the inside diameter at the top of the cone section and all adjusting rings shall be of the same size and shape as the casting frame. Refer to the Drawings for casting assemblies.
- F. Shape the soil for proper elevation and allow the structure to be vertically plumb. Install the structure base on undisturbed or firmly compacted foundation material.
- G. Set the bottom riser section in fresh concrete or mortar. All other riser section joints shall be tongue and groove design. Seal all tongue and groove joints with rubber gaskets. The concrete base under an outside drop connection shall be monolithic with the storm sewer structure base.
- H. Wherever special designs so require or permit, a precast concrete base may be used or the structure may be constructed with solid sewer brick or block units or with cast in place concrete. Any combination of cast in place concrete and brick or block mortar construction will be allowed and may be required where it is impossible to complete the construction with standard precast storm sewer structure sections.
- I. Completely fill all storm sewer structure doghouses with mortar, concrete masonry, or concrete to completely seal the pipes into the structure wall. Provide flexible joints in accordance Minnesota Plumbing Code requirements. Shape the structure invert, (the inside bottom of each storm sewer structure) with fresh concrete to form free flow invert troughs from pipe to pipe.
- J. Provide, maintain, and remove Inlet Protection Devices. Provide continual maintenance of Inlet Protection Devices throughout the duration of the project. Remove Inlet Protection Devices once upslope areas are fully stabilized and there is no risk of erosion from the construction site.

3.6 PVC STRUCTURE INSTALLATION

- A. Connect pipe to structures as specified for PVC pipe construction.
- B. Pipe connections shall be watertight.
 - 1. Joint tightness shall conform to ASTM D3212 using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477.
- C. Secure grates to structures in accordance with Structure manufacturer instructions.
- D. Construct a 12-inch wide by 6 inch thick concrete collar around the grate and frame of the PVC structures. Match the concrete collar surface with the rim elevation of the grate to allow drainage into the grate.

3.7 CASTINGS AND GRATES

- A. Securely fasten casting and grates to adjoining structures to prevent removal.

3.8 ADJUSTING

- A. Correct imperfections and irregularities in work at no additional expense to the Owner.

3.9 CASTING ADJUSTMENTS

- A. All castings within the construction limits shall be adjusted to a height between $\frac{1}{4}$ inch to $\frac{1}{2}$ inch below the final pavement course or landscape / grass elevation. This allowable tolerance shall be uniform around the periphery of each casting. Adjust all castings which do not meet this tolerance at no additional cost to the Owner.
- B. Adjust castings using only concrete or metal shims for final adjustment and leveling. Set all castings on a full mortar bed.
- C. Temporarily fasten a template of plywood to the top of each casting during paving and rolling of the final asphalt pavement course to ensure the specified tolerances are met.
- D. Include costs for casting adjustments in the bid. No additional costs for casting adjustments will be permitted.

3.10 STORM SEWER TESTING

- A. In accordance with the Minnesota Plumbing Code, test all portions of storm sewer systems located within ten feet of buried water lines or within 10 feet of buildings.
- B. Test concrete structures and concrete sewer lines by using negative pressure in accordance with ASTM Standards C1214-92 and C1244-93.
- C. Test PVC piping and PVC structures using a low pressure air test.
 - 1. Perform tests with equipment similar to Air-Loc equipment manufactured by Cherne Industrial, Inc., Hopkins, Minnesota.
 - 2. Perform the air test when the sewer is clean. Plug each end of the system to be tested with pneumatic balls. Introduce low pressure air into the plugged line until the internal air pressure reaches 5.0 psi greater than the average back pressure of any ground water pressure that may submerge the pipe. Allow at least two minutes for the air temperature inside the pressurized pipe to stabilize before starting the timer and taking readings.
 - 3. Minnesota Plumbing Code requires the pressure to remain constant for at least 15 minutes without adding more air. The air test will be considered acceptable upon completion of this test.
- D. Deflection Test
 - 1. Measure the deflection of PVC sewer pipe after placement of backfill material in the trench. Test pipe deflection at least 30 days, but not later than 1 year, following backfilling and compaction of the pipe trench. The Owner reserves the right to measure deflection of PVC sewer pipe at any time during the warranty period. Deflections greater than 5% of the inside pipe diameter will be considered failure and correction by reconstruction will be required.
- E. Visual Inspection
 - 1. Prior to final acceptance, flush a ball, the full diameter of the sewer pipe, through the sewer system. Install watertight plugs or other suitable methods to prevent dirt and debris from entering the sewer system.
 - 2. Sewer pipes shall be straight and uniform in alignment and grade. Pipe shall be free of dirt, mortar and other debris.
- F. Televising
 - 1. Televising the sewer after completion of pipe construction, backfilling and compaction operations, and stabilized aggregate base is installed in pavement areas.
 - 2. Mount the television camera on a skid so it is centered in the pipe. The camera shall have a cross-hair to maintain a constant reference on the image. Equip the camera with sufficient lights to completely illuminate the interior of the pipe within the range of the camera.
 - 3. Provide a monitor to allow multiple persons to view the picture simultaneously. Combine the television camera, transmitting equipment, and monitoring equipment to provide a picture on the monitor screen free from distortion and clear enough to distinguish between hairline cracks, "pipe marks," etc.
 - 4. Record the footage of pipe televised. A copy of the recording shall be given to the Owner, City, and Engineer within one week following the last day of televising on the project. Integrate the linear footage of pipe televised into the recording for ease of identification of pipe being viewed. Provide a diagram of the project with televising indexed on it within five (5) working days following the last day of televising on the project.
- G. Test Failure and Remedy
 - 1. In the event of test failure on any test section, correct the failures. Continue testing until all tests pass. Correct detected leakage to meet the requirements. All repair work shall be subject to approval of the Engineer. Introduction of sealant substances will not be permitted.

2. Unsatisfactory repairs or test results will result in removal and placement as the Engineer considers necessary. All repair and replacement work will be at the Contractor's expense.
3. Remove and replace any cracked or broken pipe. Leave the sewer system clean and free from any obstructions or debris.

3.11 CLEANING AND PROTECTION

- A. Protect complete sewer system from damage, debris and sedimentation until final acceptance.
- B. Clean sewer lines prior to testing and as needed prior to final acceptance of the project. Sewer system shall be free of silt, debris, and other obstructions at time of final acceptance.
- C. Pipe and structures shall be free of dirt, mortar, and other debris.
- D. Maintain pavement subgrades until final pavement preparation commences. Maintain subgrade until the start of surface construction or restoration work. Provide and shape additional materials as needed to compensate for trench settlement.
- E. Cleaning the Site:
 1. Remove excess earth, excess construction materials, construction equipment, and construction debris which is related to this work from site at completion of work.
 2. Remove and dispose of all debris, waste materials, and other remains or consequences of construction, prior to final acceptance of all work. Remove all excess materials and scrap materials from the construction site.

3.12 AS-BUILT SURVEY

- A. Submit an as-built survey.
- B. Refer to Section 01 71 23 - Field Engineering for requirements.

END OF SECTION 33 40 00

CONSTRUCTION SAFETY AND PHASING PLAN



**BOLTON
& MENK**

Real People. Real Solutions.

Construction Safety and Phasing Plan (CSPP)

Terminal Building Construction

Morris Municipal Airport – Charlie Schmidt Field (MOX)

December 2025

Submitted by:

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OVERVIEW

This document presents the Construction Safety and Phasing Plan (CSPP) for the proposed Terminal Building Construction project at the Morris Municipal Airport being performed under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). The City anticipates authorizing onsite work to commence on or about the Summer of 2026, pending execution and approval of the grant documents by the FAA. Final completion of the project is expected to be in the Summer of 2027, depending on weather.

The objective of this CSPP is to provide a general outline of the construction safety and phasing provisions for working in or near the Air Operations Area (AOA) contained in the bid documents (Project Plans and Specifications), and to explain how those provisions will be implemented during construction.

PURPOSE

The Plan provides single source procedural information for all key project personnel to use during construction. The CSPP defines the specific responsibilities of the Airport Operator, the Contractor, Airport tenants, and the Project Engineer.

Requirements for maintaining operational safety during construction are in conformance with FAA Advisory Circular 150/5370-2G, "Operational Safety on Airports During Construction". The project specific Construction Operations, Safety and Phasing plan for the project is shown on the CSPP Plan Sheet and is attached to this report as *Attachment 1*.

CONSTRUCTION SAFETY AND PHASING RESPONSIBILITIES

Airport Operator. The Airport Operator is responsible for operational safety on the Airport at all times. The Morris Municipal Airport is the Airport Operator. The City will issue Notice to Airmen (NOTAMS) whenever construction activities occur in the AOA. The City will provide oversight of all construction activities and coordinate those activities with the Airport users (pilots) and Airport tenants. The City will hold bi-weekly construction progress and safety meetings. During those meetings operational safety will be reviewed and an action plan will be developed as needed to address any discrepancies in safety that need to be corrected. The City will require and approve a Safety Plan Compliance Document (SPCD) from the Contractor prior to the Notice to Proceed. The SPCD outline is attached to this report as *Attachment 3*.

Construction Contractor. The Contractor will be required to attend scheduled progress and safety meetings and to correct any discrepancies found in safety. The Contractor is required to submit a completed SPCD to the City for approval prior to the Notice to Proceed.

Airport Tenants. The City will notify Airport tenants of all pending construction activities that impact them and advise the tenants of planned pavement closures and other activities in the AOA that will affect aircraft operations.

Project Engineer. As part of the Project Construction Management, Inspection, and Quality Assurance process, the Project Engineer will monitor construction safety on a daily basis, utilizing the "Construction Project Daily Safety Inspection Checklist" (see *Attachment 2*) to ensure an appropriate level of priority is given to safety. Any discrepancies in safety will be immediately brought to the Contractor's and City's attention for corrective action implementation.

CONSTRUCTION SAFETY AND PHASING

1. Coordination

A preconstruction conference will be held as soon as practicable after the contract has been awarded and before issuance of the notice to proceed. The preconstruction conference participants should include, but not be limited to, the sponsor's engineer, resident engineer, airport management, testing laboratory representative, contractor and subcontractor(s), contractor's project superintendent, contractor's project clerk, airport users, utility companies, federal, state, or local agencies affected by the proposed construction, and FAA representative.

Contractor progress meetings will be held weekly for the duration of construction. Operational safety will be a standing agenda item for discussion during progress meetings throughout the project. Date, time, and location of the progress meetings will be determined at the preconstruction meeting.

Scope or schedule changes for the project may necessitate revisions to the CSPP and may require review and approval by the City and the FAA. Any proposed changes to the CSPP shall be approved by the airport and FAA prior to execution.

2. Construction Phasing

The project will be constructed in 1 phase. Details of the phase are listed below.

a. Phase 1

- Scope of Work – Civil site work, paving, building foundations, building erection
- Area closed to aircraft operations – See CSPP plan sheet for periodic closures of different working areas.
- Duration – Summer 2026 with Final completion to be achieved by July 1, 2027
- Taxi route – No impact
- Emergency vehicle access routes – No impact
- Construction staging area – See CSPP plan sheet
- Construction access and haul route – See CSPP plan sheet
- Impacts to NAVAIDs – N/A
- Lighting and marking changes – N/A
- Required hazard marking and lighting – N/A
- Lead times for required notification – 72 hours

b. Construction Safety Drawings

One drawing specifically indicating construction operations and safety has been developed for the schedule and phase. This drawing has been included in *Attachment 1* and can also be found in the contract drawing bid package.

3. Areas and Operations Affected by Construction Activities

Refer to the table below to view the affected airport elements during the different phases on the project.

Operational Impact Table		
Element	Existing	Phase 1
Terminal Building	Open	CLOSED
Parking Lot	Open	Open
Apron	Open	Open
Runway	Open	Open
Taxiway A	Open	Open

4. Protection of Navigational Aids (NAVAIDs)

- a. Instrument Landing System (ILS)
N/A
- b. Precision approach path indicators (PAPIs)
N/A
- c. Runway end identified lights (REILs)
N/A

5. Contractor Access

- a. Location of stockpiled construction materials

Location of stockpiled materials and equipment storage must be in the staging area or as approved by the City. If the contractor chooses to locate stockpiles outside of the staging area, these locations will have to receive an airspace determination (7460) and the CSPP will need to be revised, resubmitted and approved.

Stockpiling materials and equipment outside the staging areas must receive prior approval from the City and will be subjected to restrictions described in this paragraph. Stockpiled materials and equipment storage are not permitted within the RSA, ROFZ, or the ROFA of an operational runway. See Section 17 – Protection of Runway and Taxiway Safety Areas for requirements of stockpiled materials inside the ROFA.

Stockpiles must be restricted to a maximum height of 15-feet.

- b. Vehicle and pedestrian operations

- i. Construction site parking

Employees' vehicles must be parked in the staging area designated on the plans or in the airport parking lot in spots approved by the airport manager. No employee vehicles will be allowed into the worksite beyond the staging area limits.

- ii. Construction equipment parking

Contractor employees must park/service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Employees must park construction vehicles outside the OFA when not in use by construction personnel (overnight, on weekends, or during

other periods when construction is not active).

iii. Access and haul roads

The contractor will be restricted to use the haul route(s) shown on the drawings. Right-of-way must be given to all emergency vehicles. See paragraphs (v.) and (vii.) in this section for requirements operating within the airfield environment.

iv. Marking and lighting of vehicles

Only marked Contractor-owned or operated vehicles required for the proper execution of the work will be allowed in the work area. All vehicles and equipment must have an omni-directional amber flashing light and/or 3-foot by 3-foot flag having a checkered pattern of international orange and white squares at least one foot on each side. All vehicles and equipment must be equipped with an omni-directional amber flashing light for all airfield activities between sunset and sunrise or when visibility is low. Vehicles within the airfield environment must display company identification markings on both sides of the vehicle. Non-motorized equipment must have a reflective devise displayed on the front, back and sides. All supervisory and survey personnel vehicles which operate within the airfield environment but outside the work area must have a company vehicle with an amber flashing light mounted on the roof of the cab and identifying markings, visible from 300 feet, mounted on both sides of the vehicle. FAA Advisory Circular (A.C.) 150/5210-5D, "Painting, Marking, and Lighting of Vehicles Used on an Airport" shall be referenced for requirements.

v. Required escorts

Escorts will not be required on this project.

vi. Situational awareness

While driving or working on the airfield environment, there must be no devices in or on ears other than those used to protect hearing or communicate company business. Yield right-of-way to emergency vehicles. In the event of an emergency, be prepared to move workers, vehicles, and equipment immediately at the direction of the City.

vii. Two-way radio communication procedures

All activities within aircraft movement areas will require two-way radio communication. In the event the contractor needs to access a movement area, all radio communications will be performed by the contractor using the Common Traffic Advisory Frequency (CTAF). Frequency that will be used is:

CTAF – 122.8 MHz

6. Wildlife Management

a. Trash

Receptacles must be provided by the contractor and equipped with metal, canvas, or plastic covers. Food scraps or other trash may not be disposed on the ground and must be collected and placed in the covered receptacles as to not attract wildlife.

- b. Standing water
Staging areas, stockpile areas, and the work area must be graded to drain to avoid attracting wildlife
- c. Tall grass and seeds
The use of low quality seed mixtures that contain seeds of plants (such as clover) will attract wildlife and must not be used. Grass and weeds must be managed, or cut if necessary, within work areas to avoid attracting wildlife.
- d. Disruption of existing wildlife habitat
Contractor personnel should immediately notify the airport operator of wildlife sighting.

7. Foreign Object Debris (FOD) Management

The contractor will be required to ensure the airfield environment is kept continuously free of construction debris, equipment and/or materials that might endanger or be ingested by an aircraft. Take extreme care to ensure no work-related debris or other loose items are allowed to be blown by wind or aircraft engine blast. The Contractor must be responsible for any resulting damage to aircraft engines and/or other property arising from failure to secure and/or protect debris, tools, supplies, or other loose items. In areas that may result in the tracking of soil, sediments, or hazardous materials on the wheels of hauling equipment outside the area that are enclosed by erosion and silt/sediment control devices, the Contractor must provide the means and methods to remove these materials prior to the vehicle exiting the controlled area. Equipment operated on haul routes over existing pavements must be kept free of material spillage and foreign matter at all times. Standby equipment is required to be onsite and operational at all times throughout the project and must include, at a minimum, a self-propelled regenerative air sweeper and a water truck kept loaded at all times.

8. Hazardous Materials (HAZMAT) Management

HAZMAT procedures will be developed by the Contractor prior to issuance of the Notice-to-Proceed (NTP), including, but not limited to:

- a. Fuel Storage Locations
- b. Locations for Fueling and/or Servicing of Equipment
- c. Spill Procedures
- d. MSDS

For additional information and requirements on airports, reference FAA A.C. 150/5320-15, "Management of Airport Industrial Waste".

9. Notification of Construction Activities

- a. Responsible representatives/points of contact

Points of Contact			
Name	Representing	Office	Cell
Tom Kloos	Morris Municipal Airport	320-589-2083	-
Silas Parmar	Bolton & Menk	-	612-987-0138

b. Notices to Airmen (NOTAMs)

Only the City may initiate or cancel a NOTAM on airport conditions and is the only entity that can close or open a runway. Points of contact for issuing NOTAMS are as follows: Main Contact – Patricia Nordean, 218-834-5631.

c. Emergency notification procedures

- Emergency – DIAL 911
- City of Morris – (320) 589-3141
- CTAF radio emergency – 122.8 MHz
- Morris Fire Department – (320) 589-1371
- Hospital – Morris Hospital and Clinic – (320) 589-1313
- Minnesota Poison Control – 800-222-1222

d. Notification to the FAA

i. Part 77

The project will affect navigable airspace. Therefore, the City will file an FAA 7460-1, Notice of Proposed Construction or Alteration, for the project. Any equipment, (cranes, graders, other equipment) used by the contractor that exceed the 25' height limitation must also have a 7460-1 airspace evaluation and determination prior to use.

10. Inspection Requirements

a. Daily inspections

Inspections shall be conducted by the Contractor at least daily, but more frequently if necessary, to ensure conformance with the CSPP. The City will have the final authority in determining if the area is suitable for aircraft use. *Attachment 2* contains a safety inspection checklist that may be used by the Contractor or City. Any deficiencies, whether caused by negligence, oversight, or project scope change, are to be addressed immediately.

b. Final inspection

An inspection must be conducted by the City prior to the commissioning of any newly constructed areas open to air traffic. The City will have the final authority in determining if the area is suitable for aircraft use. *Attachment 2* contains a safety inspection checklist that may be used by the Contractor or City.

11. Underground Utilities

Notify Gopher State One Call and owners of underground utilities within the construction area or within affected public rights-of-way or easements, via the “one-call” notification system (1-800-252-1166) in advance of the commencement of excavation activities. Notify the City when the “one-call” request is being initiated. Contractor must not cross electrical or communication cables unless protected by approved means. In the event of interruption to field-located utility services as a result of the work, promptly notify the City first, and then the proper authority. Cooperate with said authority in restoring service as promptly as possible. If required, the Contractor must install suitable temporary service until permanent repair is completed. Refer to General Provisions, Section 70.

12. Penalties

The Contractor is responsible for compliance with the CSPP as detailed herein. Violations will be cause for the project to be stopped and project safety procedures evaluated. Contractor working days will continue to be charged, even if the City ceases construction operations. The City will decide if and when work will continue. Enforcement of these regulations will be by the City. Refer to General Provision Section 80-06, Temporary Suspension of the Work, for further details. Failure to comply with the CSPP is a failure on the part of the contractor to carry out orders given or perform any provisions of the contract.

13. Special Conditions

An aircraft in distress may require the Contractor to immediately move equipment. The City will notify the Contractor in the unlikely event of an aircraft in distress. The Contractor will be required to comply with all City and/or Air Traffic instructions, and all equipment directed to be moved shall be relocated to the Staging Area.

Various circumstances, such as an aircraft accident, security breach, or other unforeseen event may require suspension of the construction. The City will notify the Contractor when suspension of the work will be required. See Section 9 – Notification of Construction Activities for emergency contact information.

A VPD (vehicle / pedestrian deviation) is any entry or movement on the movement area by a vehicle or pedestrian that has not been authorized by the City. In the event of a VPD, the City reserves the right to suspend the work or any portion thereof and continue suspension until the completion of any investigation or evaluation by the City and full compliance with any corrective measures which the City may reasonably require. In addition, the City may require the Contractor to provide to the City a written plan, satisfactory to the City, to demonstrate the Contractor's ability to prevent future violations. See Section 5 – Contractor Access for vehicle and pedestrian operations and two-way radio communication requirements.

14. Runway and Taxiway Visual Aids

a. General

Airfield will remain open for the duration of the project

b. Markings

(i) Temporarily Closed Runway

Temporarily closed runways are identified on the Construction Operations & Safety Plan and identified in Section 2 – Construction Phasing. Temporarily closed runway at runway/taxiway intersections must have low-profile barricades placed outside the ROFZ.

(ii) Temporary Closed Taxiway

Temporarily closed taxiways are identified on the Construction Operations & Safety Plan and identified in Section 2 – Construction Phasing. Temporarily closed taxiways at runway/taxiway intersections must have low-profile barricades placed outside the ROFZ and the small X located 10 feet from the runway edge per Figure 2-4 in FAA A.C. 150/5370-2G.

-
- c. Lighting and visual VISADs
N/A

15. Marking and Signs for Access Routes

The Contractor must place traffic control signs and/or devices, as appropriate and as shown on the CSPP, to advise other road users of construction operations and hauling. Signs and/or devices must conform with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD), 2009 edition. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23.

16. Hazard Marking and Lighting

Before starting work, the contractor must provide and have available all signs, barricades, and lights necessary for protection of the work. Install and maintain adequate warning signs and lighted barricades to protect property and personnel in the work area. Barricades must be weighted or anchored to prevent overturning from wind or aircraft engine blast.

Barricades are not permitted in any active safety area. Barricades located within a runway or taxiway object free area and/or on aprons must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights. Barricaded must be spaced according to the function. For aircraft movement areas barricades must be placed at 10' on center. For vehicle movement areas barricades must be placed at 4' on center. For personnel movement area barricades must be placed with 0' spacing.

The Contractor must 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 as information included in their SPCD. Lighting must be checked for proper operation at least once per day, preferably at dusk.

Open trenches, excavations, or obstructions not being actively worked must be marked with lighted and weighted barricades which can be seen from a reasonable distance. Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the City, and light them with red lights during hours of restricted visibility or darkness.

17. Protection of Safety Areas

- a. Runway Safety Area (RSA)

No construction may occur within the existing RSA while the runway is open for aircraft operations. Open trenches or excavations are not permitted within the RSA while the runway is open. If possible, backfill trenches before the runway is opened.

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

Grading tolerances inside the safety area must be 5% maximum grade with no humps/depressions/drop-offs greater than 3-inches. The RSA is depicted on the Construction Operations, Safety, and Phasing plan contained in *attachment 1*. The dimension for the Runway 14/32 RSA is 75-FT each side of centerline and 300-FT beyond each runway end.

b. Runway Obstacle Free Zone (ROFZ)

Personnel, material, and/or equipment may not penetrate the OFZ while the runway is open to aircraft operations. The runway OFZ is depicted on the Construction Operations, Safety, and Phasing plan contained in *Attachment 1*. The dimension for Runway 14/32 OFZ is 250-FT each side of centerline and 300-FT beyond each runway end.

c. Runway Object Free Area (ROFA)

Construction, including excavations, may be permitted within the ROFA. However, equipment must be removed from the ROFA when not in use and material shall not be stockpiled in the ROFA. The dimension for the Runway 14/32 ROFA is 250-FT each side of centerline and 300-FT beyond each runway end.

d. Taxiway Safety Area (TSA)

No construction may occur in the TSA while the taxiway is open to aircraft operations. For this project, the TSA will be 39.5-FT each side of centerline. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Backfill trenches before the taxiway is opened.

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

e. Taxiway Object Free Area (TOFA)

No construction will be allowed within the taxiway object free area while the taxiway is open to aircraft operations. For this project, the TOFA will be 62-FT each side of centerline for all taxiways.

f. Runway approach/departure surfaces

All personnel, material, and/or equipment must remain clear of approach/departure surfaces.

18. Other Limitations on Construction

a. Prohibitions

- Open flame welding or torches are prohibited unless fire safety precautions are provided and the airport has approved their use.
- The use of flare pots are prohibited within the Airport Operations Area (AOA).
- No smoking will be allowed within the airfield environment.



APPENDIX - 1

CONSTRUCTION SAFETY PHASING PLAN



SAFETY AND CONSTRUCTION NOTES
(SEE CONSTRUCTION SAFETY AND PHASING PLAN IN SPECIFICATIONS FOR ADDITIONAL DETAIL)

- AIRCRAFT OPERATIONS AREA**
- RUNWAY14/32 SHALL REMAIN OPEN AND OPERATIONAL FOR THE DURATION OF THE PROJECT.
 - AIRPORT SHALL ISSUE ALL NOTAMS.

- CONSTRUCTION EQUIPMENT:**
- ALL CONSTRUCTION EQUIPMENT MUST BE MARKED WITH A 3-FEET X 3-FEET ORANGE AND WHITE CHECKERED FLAG.
 - A FLASHING AMBER BEACON IS OPTIONAL BUT IS REQUIRED DURING TIMES OF LOW VISIBILITY.
 - CONTRACTOR MUST OBTAIN APPROVAL FROM THE ENGINEER FOR ANY EQUIPMENT WHICH EXCEEDS A HEIGHT OF 20-FEET.

- SWEEPING AND CLEANING:**
- CONTRACTOR SHALL HAVE A SWEEPER ON-SITE AT ALL TIMES TO PICKUP DEBRIS FROM ACTIVE PAVEMENT AREA AS IT OCCURS.

- HAUL ROUTES:**
- HAUL ROUTES AND ACCESS TO THE CONSTRUCTION SITE ARE DEPICTED ON THIS SHEET.
 - GROUND OPERATIONS ARE UNCONTROLLED AT THE AIRPORT. WHEN A RUNWAY OR TAXIWAY IS OPEN TO AIR TRAFFIC, THE CONTRACTOR MUST OBTAIN RADIO CLEARANCE PRIOR TO PROCEEDING.
 - THE AIRPORT FREQUENCY IS 122.80 MHZ.

- STAGING AREA:**
- STAGING AREA SHALL BE RESTORED TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE AFTER PROJECT IS COMPLETED.
 - EXACT LOCATION TO BE DETERMINED BY ENGINEER.

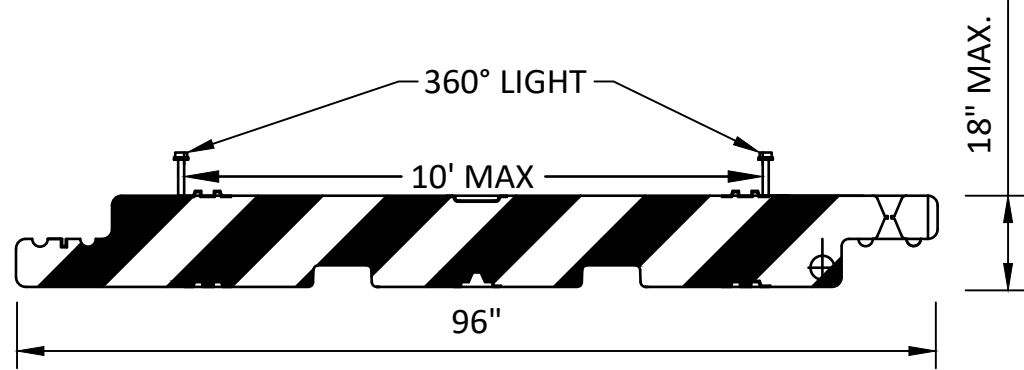
CONSTRUCTION NOTES:

- WORK ELEMENTS:**
- DEMOLITION OF NEW TERMINAL BUILDING
 - CONSTRUCTION OF PROPOSED TERMINAL BUILDING

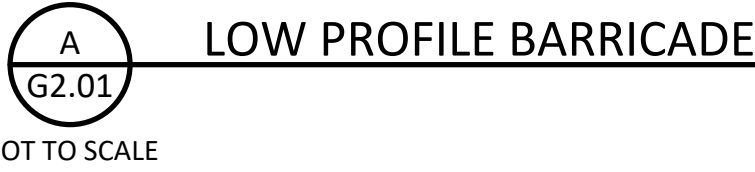
- ACTIVE AREAS AFFECTED:**
- TERMINAL BUILDING

LEGEND

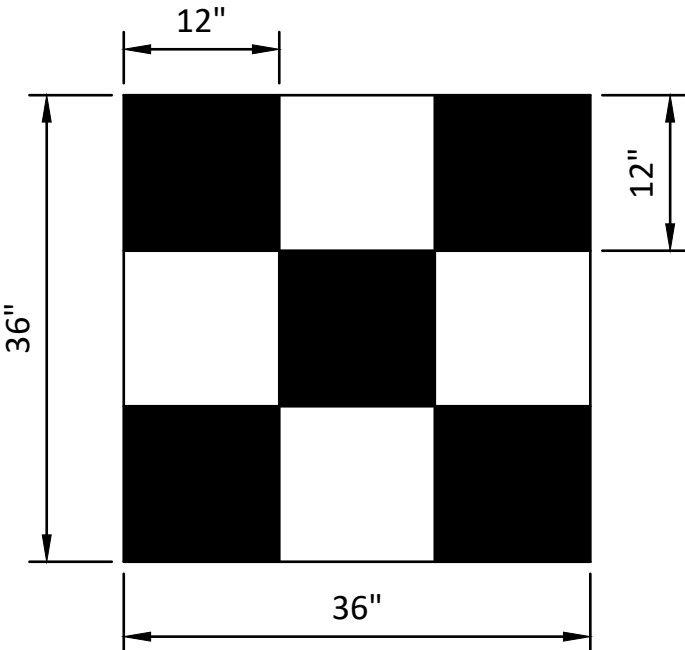
- CONTRACTORS ACCESS ROUTE
- LOW PROFILE BARRICADES
- CONSTRUCTION STAGING LOCATION (50' X 50')
- WORK AREA



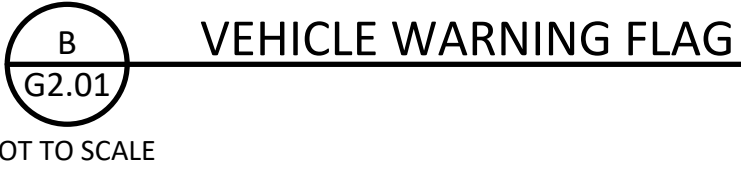
- LOW PROFILE BARRICADE NOTES:**
- 1) BARRICADES SHALL BE LOW PROFILE AND LOW MASS AS APPROVED BY ENGINEER.
 - 2) TWO FLASHING RED LIGHTS ARE REQUIRED. LIGHTS SHALL BE OMNIDIRECTIONAL OR ROTATE ONE LIGHT 90°. SECURELY FASTEN LIGHTS TO BARRICADE.
 - 3) REFLECTIVE MEDIA SHALL BE ALTERNATING 6" WIDE BANDS OF INTERNATIONAL ORANGE AND WHITE ANGLED AT 45°.
 - 4) BARRICADES SHALL BE SECURELY WEIGHTED TO PREVENT MOVEMENT BY WIND, PROPELLER WASH, OR JET BLAST UP TO 75 MPH.
 - 5) SPACE BARRICADES 4' APART OR LESS AND EXTEND ACROSS PAVEMENT, EDGE TO EDGE.
 - 6) CONTRACTOR SHALL INSPECT BARRICADES TWICE DAILY - BEFORE CONSTRUCTION STARTS AND PRIOR TO LEAVING THE SITE AT THE END OF DAY.
 - 7) DISTANCE BETWEEN LIGHTS SHALL NOT EXCEED 10.'



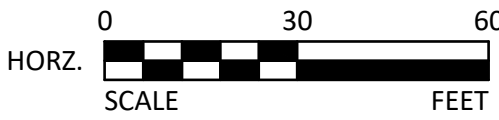
POINT LAT/LONG DATA					
POINT NUMBER	DESCRIPTION	LATITUDE	LONGITUDE	ELEVATION	HEIGHT (FT)
1	CONSTRUCTION AREA	N45°34'14.07"	W95°58'07.90"	1132	20
2	CONSTRUCTION AREA	N45°34'14.07"	W95°58'06.91"	1132	20
3	CONSTRUCTION AREA	N45°34'13.55"	W95°58'07.89"	1132	20
4	CONSTRUCTION AREA	N45°34'13.55"	W95°58'06.90"	1132	20
5	STAGING AREA	N45°34'15.07"	W95°58'07.78"	1131	20
6	STAGING AREA	N45°34'15.07"	W95°58'07.08"	1132	20
7	STAGING AREA	N45°34'14.58"	W95°58'07.77"	1132	20
8	STAGING AREA	N45°34'14.58"	W95°58'07.07"	1132	20
9	HAUL ROUTE	N45°34'17.17"	W95°58'06.39"	1133	20
10	HAUL ROUTE	N45°34'15.19"	W95°58'06.35"	1132	20
11	HAUL ROUTE	N45°34'14.83"	W95°58'07.02"	1132	20



- NOTES:**
1. FLAG SHALL HAVE A CHECKERED PATTERN OF INTERNATIONAL ORANGE AND WHITE SQUARES



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H:\MHS\25X141173\MOX\CAD\3D\141173_G201.dwg 5/26/2026 10:24:34 AM



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 PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Silas P. Parmar

SILAS P. PARMAR
LIC. NO. 48688
DATE 05/26/2026



7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MN 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

DESIGNED	DDL	NO.	ISSUED FOR	DATE
DRAWN	DDL			
CHECKED	SPP			
CLIENT PROJ. NO.	25X.141173			

MORRIS MUNICIPAL AIRPORT (MOX)
AIRPORT TERMINAL BUILDING RECONSTRUCTION
CONSTRUCTION SAFETY & PHASING PLAN

SHEET

G2.01



APPENDIX - 2

INSPECTION CHECKLISTS

Construction Project Daily Safety Inspection Checklist

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. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project

Potentially Hazardous Conditions

ITEM	ACTION REQUIRED	NONE
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		☐
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		☐
Runway resurfacing projects resulting in lips exceeding 3 in (7.6 cm) from pavement edges and ends.		☐
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.		☐
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		☐
Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and approach zones.		☐
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		☐
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) 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.		☐
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 create aviation hazards.		☐
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 create aviation hazards.		☐
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		☐

Obliterated or faded temporary markings on active operational areas.		☐
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		☐
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		☐
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 navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		☐
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.		☐
Lack of radio communications with construction vehicles in airport movement areas.		☐
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.		☐
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.		☐
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.		☐
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		☐
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.		☐
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.		☐
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.		☐
Site burning, which can cause possible obscuration.		☐
Construction work taking place outside of designated work areas and out of phase.		☐



APPENDIX - 3

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

REQUIREMENTS

Safety Plan Compliance Document

The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I, Name of Contractor, have read the Title of Project CSPP, approved on Date, and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

- (1) **Coordination.** Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
- (2) **Phasing.** Discuss proposed construction schedule elements, including:
 - (a) Duration of each phase.
 - (b) Daily start and finish of construction, including "night only" construction.
 - (c) Duration of construction activities during:
 - (i) Normal runway operations.
 - (ii) Closed runway operations.
 - (iii) Modified runway "Aircraft Reference Code" usage.
- (3) **Areas and operations affected by the construction activity.** These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
- (4) **Protection of NAVAIDs.** Discuss specific methods proposed to protect operating NAVAIDs.
- (5) **Contractor access.** Provide the following:
 - (a) Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
 - (b) Listing of individuals requiring driver training (for certificated airports and as requested).
 - (c) Radio communications.
 - (i) Types of radios and backup capabilities.
 - (ii) Who will be monitoring radios.
 - (iii) Whom to contact if the ATCT cannot reach the contractor's designated person by radio.
 - (d) Details on how the contractor will escort material delivery vehicles.
- (6) **Wildlife management.** Discuss the following:
 - (a) Methods and procedures to prevent wildlife attraction.
 - (b) Wildlife reporting procedures.
- (7) **Foreign Object Debris (FOD) management.** Discuss equipment and methods for control of FOD, including construction debris and dust.
- (8) **Hazardous material (HAZMAT) management.** Discuss equipment and methods for responding to hazardous spills.
- (9) **Notification of construction activities.** Provide the following:

- (a) Contractor points of contact.
 - (b) Contractor emergency contact.
 - (c) Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
 - (d) Batch plant details, including 7460-1 submittal.
- (10) **Inspection requirements.** Discuss daily (or more frequent) inspections and special inspection procedures.
- (11) **Underground utilities.** Discuss proposed methods of identifying and protecting underground utilities.
- (12) **Penalties.** Penalties should be identified in the CSPP and should not require an entry in the SPCD.
- (13) **Special conditions.** Discuss proposed actions for each special condition identified in the CSPP.
- (14) **Runway and taxiway visual aids.** Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
- (a) Equipment and methods for covering signage and airfield lights.
 - (b) Equipment and methods for temporary closure markings (paint, fabric, other).
 - (c) Types of temporary Visual Guidance Slope Indicators (VGSI).
- (15) **Marking and signs for access routes.** Discuss proposed methods of demarcating access routes for vehicle drivers.
- (16) **Hazard marking and lighting.** Discuss proposed equipment and methods for identifying excavation areas.
- (17) **Protection of runway and taxiway safety areas.** Including object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
- (a) Equipment and methods for maintaining Taxiway Safety Area standards.
 - (b) Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
- (18) **Other limitations on construction** should be identified in the CSPP and should not require an entry in the SPCD.

AVIATION - SPECIAL NOTICE

******Important Notice******

REGARDING STATE AND FEDERAL WAGE DETERMINATIONS

ALL CONTRACTORS AND OTHERS INTERESTED IN THIS PROJECT SHALL NOTE THE FOLLOWING AND CONSIDER THE SAME IN BIDDING AND PERFORMING THE WORK:

The Contractor is responsible for paying the higher of the wage rates listed in the Davis-Bacon (Federal) or State of Minnesota Prevailing Wages, both of which are contained in this contract document.

The Contractor shall also note and conform to the appropriate Federal and State requirements for calculation of working hours, overtime pay, fringe benefits, and similar items. In particular, contractors shall note the State requirement that all hours worked in excess of 8 hours per day or 40 hours per week shall be paid at a rate of one and one-half times the basic hourly rate.

The Contractor shall be responsible for submitting weekly payrolls to be reviewed for compliance with the State and Federal Wage Determinations that apply to this project. Mn/DOT acceptable forms shall be used for this reporting purpose.

FEDERAL DAVIS – BACON WAGE RATES

Airport Terminal Building Construction

Morris Municipal Airport (MOX)

25X.141173

FAA AIP 3-27-0069-19-2026

FAA AIG 3-27-0069-20-2026

City of Morris

Morris, MN

State: Minnesota

Construction Types: Building

Counties: Minnesota Counties of
Stevens

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

SAMN2024-085 12/23/2024

	Rates	Fringes
WIRING SYSTEMS INSTALLER.....	\$ 33.44	17.82
WIRING SYSTEM TECHNICIAN.....	\$ 47.73	22.24
UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL).....	\$ 27.75	19.94
TRUCK DRIVER: GROUP 4: BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER); DUMP PERSON; GREASER; PILOT CAR DRIVER; RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS; TWO AXLE UNIT; SLURRY OPERATOR; TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER); TRACTOR OPERATOR, UNDER 50 H.P.....	\$ 16.00	0.00
TRUCK DRIVER: GROUP 3: BITUMINOUS DISTRIBUTOR DRIVER; BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION); THREE AXLE UNITS.....	\$ 23.11	15.25
TRUCK DRIVER: GROUP 2: FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK.....	\$ 26.00	0.00
TRUCK DRIVER: GROUP 1: MECHANIC; TRACTOR TRAILER DRIVER; TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES).....	\$ 28.00	0.84
TILE SETTER.....	\$ 30.66	10.53
TILE FINISHER.....	\$ 20.50	1.50
TERRAZZO WORKER.....	\$ 37.58	16.83
SURVEY FIELD TECHNICIAN, -\$950,000 (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).....	\$ 24.76	17.69
SURVEY FIELD TECHNICIAN, +\$950,000 (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).....	\$ 26.51	17.69
SPRINKLER FITTER.....	\$ 43.53	26.67
SIGN ERECTOR.....	\$ 37.19	19.88
SHEET METAL WORKER.....	\$ 48.15	29.12
ROOFER.....	\$ 41.81	21.93

POWER EQUIPMENT OPERATOR: HIGHWAY/HEAVY GROUP 6: CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER; DREDGE DECK HAND; GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING); LEVER PERSON; POWER SWEEPER; SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS; TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING.....	\$ 14.00	0.00
POWER EQUIPMENT OPERATOR: HIGHWAY/HEAVY GROUP 5: BITUMINOUS ROLLER (UNDER EIGHT TONS); CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED); FORM TRENCH DIGGER (POWER); HYDRAULIC LOG SPLITTER; LOADER (BARBER GREENE OR SIMILAR TYPE); POST HOLE DRIVING MACHINE/POST HOLE AUGER; POWER ACTUATED JACK; SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR); SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER; SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER; STUMP CHIPPER AND TREE CHIPPER; TREE FARMER (MACHINE).....	\$ 33.00	0.00
POWER EQUIPMENT OPERATOR: HIGHWAY/HEAVY GROUP 4: AIR TRACK ROCK DRILL; AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY); BACKFILLER OPERATOR; BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER); BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON); BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS; CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS; CHIP HARVESTER AND TREE CUTTER; CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE; CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY); CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT; CURB MACHINE; DIRECTIONAL BORING MACHINE; DOPE MACHINE (PIPELINE); DUAL TRACTOR; ELEVATING GRADER; GPS REMOTE OPERATING OF EQUIPMENT; HYDRAULIC TREE PLANTER; LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE); LOCOMOTIVE (HIGHWAY AND HEAVY ONLY); MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE; PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE; PIPELINE WRAPPING, CLEANING OR BENDING MACHINE; POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES; PUGMILL; RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY); SCRAPER; SELF-PROPELLED SOIL STABILIZER; SLIP FORM (POWER DRIVEN) (PAVING); TIE TAMPER AND BALLAST MACHINE; TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY); TUB GRINDER, MORBARK, OR SIMILAR TYPE..	\$ 38.00	0.00
POWER EQUIPMENT OPERATOR: HIGHWAY/HEAVY GROUP 3: ASPHALT BITUMINOUS STABILIZER PLANT; CABLEWAY; DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY); DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER; LOCOMOTIVE CRANE OPERATOR; TANDEM SCRAPER; TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY).....	\$ 37.00	0.00
POWER EQUIPMENT OPERATOR: HIGHWAY/HEAVY GROUP 2: GRADER OR MOTOR PATROL; TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED.....	\$ 40.00	0.00
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 7: AIR		

COMPRESSOR 600 CFM OR OVER; BRAKEPERSON; CONCRETE PUMP/PUMPCRETE OR COMPLACO TYPE; FIREPERSON, TEMPORARY HEAT SECOND CLASS BOILER LICENSE; OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS AND MILLING MACHINES, OR OTHER SIMILAR POWER EQUIPMENT); PICK UP SWEEPER (ONE CUBIC YARD HOPPER CAPACITY); PUMP AND/OR CONVEYOR.....	\$ 41.73	26.88
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 6: CONCRETE BATCH PLANT; FIREPERSON, FIRST CLASS BOILER LICENSE; FRONT END, SKID STEER UP TO 1 C YD; GUNITE MACHINE; TRACTOR OPERATOR D2 OR SIMILAR SIZE; TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER.....	\$ 37.75	21.70
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 5: AIR COMPRESSOR 450 CFM OR OVER (TWO OR MORE MACHINES); CONCRETE MIXER; CONCRETE PUMP UP TO 31 METERS/101 FEET OF BOOM; DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL WHEN USED FOR CAISSON FOR ELEVATOR OR BUILDING CONSTRUCTION; FORKLIFT; FRONT END, SKID STEER 1 C YD AND OVER; HOIST ENGINEER (ONE OR TWO DRUMS); MECHANIC (ON POWER EQUIPMENT); POWER PLANT (100 KW AND OVER OR MULTIPLES EQUAL TO 100KW AND OVER); PUMP OPERATOR AND/OR CONVEYOR (TWO OR MORE MACHINES); SELF-ERECTING TOWER CRANE UNDER 100 FEET MEASURED FROM BOOM FOOT PIN; STRADDLE CARRIER; TRACTOR OVER D2; WELL POINT PUMP.....	\$ 39.17	21.70
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 4: CRAWLER BACKHOE INCLUDING ATTACHMENTS; FIREPERSON, CHIEF BOILER LICENSE; HOIST ENGINEER (THREE DRUMS OR MORE); LOCOMOTIVE; OVERHEAD CRANE (INSIDE BUILDING PERIMETER); TRACTOR . BOOM TYPE.....	\$ 40.58	21.70
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 3: ALL-TERRAIN VEHICLE CRANES; CONCRETE PUMP 32-49 METERS/102-164 FEET; DERRICK (GUY & STIFFLEG); SELF-ERECTING TOWER CRANE 100 FEET AND OVER MEASURED FROM BOOM FOOT PIN; STATIONARY TOWER CRANE UP TO 200 FEET; TRAVELING TOWER CRANE; TRUCK OR CRAWLER CRANE UP TO AND NOT INCLUDING 150 FEET OF BOOM, INCLUDING JIB.....	\$ 47.02	26.88
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 2: TOWER CRANE 200 FEET AND OVER; CONCRETE PUMP WITH 50 METERS/164 FEET OF BOOM AND OVER; PILE DRIVING WHEN THREE DRUMS IN USE; TRUCK OR CRAWLER CRANE WITH 150 FEET OF BOOM UP TO AND NOT INCLUDING 200 FEET, INCLUDING JIB.....	\$ 48.53	26.88
POWER EQUIPMENT OPERATOR: COMMERCIAL GROUP 1: HELICOPTER PILOT; TOWER CRANE 250 FEET AND OVER; TRUCK CRAWLER CRANE WITH 200 FEET OF BOOM AND OVER, INCLUDING JIB.....	\$ 43.35	22.85
PLUMBER.....	\$ 54.79	30.58
PLASTERER.....	\$ 45.98	24.45
PIPELAYER (WATER, SEWER AND GAS).....	\$ 29.75	19.94
PIPEFITTER/STEAMFITTER.....	\$ 48.24	34.70
PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS).....	\$ 27.46	16.11
PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT ((ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.).....	\$ 18.00	0.00
PAINTER (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS).....	\$ 34.23	25.28
MILLWRIGHT.....	\$ 34.13	30.28
LATHER.....	\$ 13.00	0.00
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).....	\$ 11.13	0.00
LABORER: SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN).....	\$ 36.06	24.39
LABORER: LANDSCAPE (GARDENER, SOD LAYER AND NURSERY OPERATOR).....	\$ 17.50	0.00
LABORER: COMMON OR GENERAL (GENERAL LABOR WORK)....	\$ 36.06	24.39
IRONWORKER.....	\$ 44.85	35.72
HEATING AND FROST INSULATORS.....	\$ 57.24	31.95
GLAZIER.....	\$ 36.49	21.85
ELEVATOR CONSTRUCTORS.....	\$ 59.95	44.53
ELECTRICIAN.....	\$ 46.00	30.00
DRYWALL TAPER.....	\$ 35.31	24.43
CEMENT MASON.....	\$ 50.06	25.45
CARPET LAYER (LINOLEUM).....	\$ 27.15	17.38
CARPENTER.....	\$ 33.14	27.60
BRICKLAYER.....	\$ 41.73	29.01
BOILERMAKER.....	\$ 46.00	31.93
ASBESTOS ABATEMENT WORKER.....	\$ 41.23	25.99
ARTICULATED HAULER.....	\$ 17.50	0.00

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any
solicitation was issued) on or after January 1, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours
they work, up to 56 hours of paid sick leave each year.
Employees must be permitted to use paid sick leave for their
own illness, injury or other health-related needs, including
preventive care; to assist a family member (or person who is
like family to the employee) who is ill, injured, or has other
health-related needs, including preventive care; or for reasons
resulting from, or to assist a family member (or person who is
like family to the employee) who is a victim of, domestic
violence, sexual assault, or stalking. Additional information
on contractor requirements and worker protections under the EO
is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject
to the Davis-Bacon Act that were awarded on or between January 1,
2015 and January 29, 2022, and that have not been renewed or
extended on or after January 30, 2022. Executive Order 13658 does
not apply to contracts subject only to the Davis-Bacon Related Acts
regardless of when they were awarded. If a contract is subject to
Executive Order 13658, the contractor must pay all covered workers
at least \$13.65 per hour (or the applicable wage rate listed on this
wage determination, if it is higher) for all hours spent performing on
the contract from May 11, 2026, through December 31, 2026. The
applicable Executive Order minimum wage rate will be adjusted annually.
Additional information on contractor requirements and worker
protections under Executive Order 13658 is available at
www.dol.gov/whd/govcontracts.

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) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than **◆SU◆**, **◆UAVG◆**, **◆SA◆**, or **◆SC◆** denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The **◆SU◆** identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

◆SU◆ wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the

discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The **SA** identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the **SA** identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail 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 an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail 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 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.

=====
END OF GENERAL DECISION

"

APPENDICES

GEOTECHNICAL REPORT



REPORT OF GEOTECHNICAL EXPLORATION AND REVIEW

Morris Airport Terminal Building
Morris, Minnesota

AET Project No. P-0044323

Date:

January 30, 2026

Prepared for:

Bolton and Menk Inc.
12224 Nicollet Ave
Burnsville, MN 55337

Geotechnical • Materials
Forensic • Environmental
Building Technology
Petrography/Chemistry

American Engineering Testing

1603 Halbur Road
Marshall, MN 56258
TeamAET.com • 507.532.0771

January 30, 2026



Bolton and Menk Inc.
12224 Nicollet Ave
Burnsville, MN 55337

Attn: Silas Parmar, PE
Silas.parmar@bolton-menk.com

RE: Report of Geotechnical Exploration
Morris Airport Terminal Building
50725 MN-28
Morris, Minnesota
AET Project No. P-0044323

Dear Mr. Parmar:

American Engineering Testing, Inc. (AET) is pleased to present the results of our subsurface exploration program and geotechnical engineering review for your Morris Airport Terminal Building project in Morris, Minnesota. These services were performed according to our proposal to you dated June 11, 2025.

We are submitting one electronic copy of the report to you.

Please contact me if you have any questions about the report. I can also be contacted for arranging construction observation and testing services during the earthwork phase.

Sincerely,
American Engineering Testing, Inc.

A handwritten signature in black ink, appearing to read 'Gregory Guyer', is written over the printed name.

Gregory A. Guyer, PE
Senior Engineer
gguyer@teamAET.com
507.387.2222
507.420.3867 c

Report of Geotechnical Services

Morris Airport Terminal Building, Morris, Minnesota

January 30, 2026

AET Report No. P-0044323



SIGNATURE PAGE

Prepared for:

Bolton and Menk

12224 Nicollet Ave

Burnsville, MN 55337

Attn: Mr. Silas Parmar

Prepared by:

American Engineering Testing, Inc.

1603 Halbur Road

Marshall, MN 56258

507.532.0771/www.teamAET.com

Authored by:

A handwritten signature in blue ink that reads 'Gregory A. Guyer'.

Gregory A. Guyer, PE
Senior Engineer

Reviewed by:

A handwritten signature in blue ink that reads 'Steve Mullen'.

Steve Mullen, PE
Senior Engineer

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 Professional Engineer under Minnesota Statute Section 326.02 to 326.15

Name: Gregory A. Guyer

Date: January 30, 2026 License #: 44618

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Morris Airport Terminal Building, Morris, Minnesota

January 30, 2026

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**STANDARD SHEETS**

Floor Slab Moisture/Vapor Protection

Freezing Weather Effects on Building Construction

APPENDIX A – Geotechnical Field Exploration and Testing

Boring Log Notes

Unified Soil Classification System

Figure 1 - Project Location

Figure 2 - Boring Locations

Subsurface Boring Logs

APPENDIX B – Geotechnical Report Limitations and Guidelines for Use

Report of Geotechnical Services

Morris Airport Terminal Building, Morris, Minnesota

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1.0 INTRODUCTION

You are proposing to construct a new terminal building at the Morris Municipal Airport in Morris, Minnesota. To assist planning and design, you have authorized American Engineering Testing, Inc. (AET) to conduct a subsurface exploration program at the site, conduct soil laboratory testing, and perform a geotechnical engineering review for the project. This report presents the results of the above services and provides our engineering recommendations based on this data.

2.0 SCOPE OF SERVICES

AET's services were performed according to our proposal to you dated June 11, 2025, which you authorized on October 21, 2025. The authorized scope consists of the following.

- 2 standard penetration test borings to a depth of 24.5 feet.
- Soil laboratory testing.
- Geotechnical engineering review based on the data and preparation of this report.

These services are intended for geotechnical purposes only. The scope is not intended to explore for the presence or extent of environmental contamination in the soil or groundwater.

3.0 PROJECT INFORMATION

We understand that you are planning to construct a new Terminal Building at the Morris Municipal Airport in Morris, Minnesota. The existing Terminal Building will be demolished with new building constructed within the same general area. We understand the construction will consist of a 1,300 square foot, single-story, slab-on-grade structure. Further, we understand that the proposed structure will be supported on conventional spread-footing foundations founded at sufficient depth for protection from frost penetration. The proposed on-grade floor elevation will be at or slightly above existing site grade. The structures will be located as shown on the attached site sketch.

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We do not have specific structural loading information. Based upon previous experience with similar construction materials, we would estimate moderately light to moderate loadings for a structure of this type. We assume that wall loadings will be less than 4 kips per lineal foot and column loads, if any, will be less than 50 kips. Additionally, we estimate that floor slab loadings will be less than 200 pounds per square foot.

Our foundation design assumptions include a minimum factor of safety of 3 with respect to the ultimate soil bearing capacity. We assume the structure will be able to tolerate total settlements of up to 1 inch, and differential settlements over a 30-foot distance of up to ½ inch.

The above stated 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.

4.0 SUBSURFACE EXPLORATION AND TESTING

4.1 FIELD EXPLORATION PROGRAM

The subsurface exploration program conducted for the project consisted of 2 standard penetration test borings. The soil boring locations, surface elevations, and boring depths were provided by Bolton and Menk. The logs of the borings and details of the methods used appear in Appendix A. The logs contain information concerning soil layering, soil classification, geologic origins, and moisture condition. A density description or consistency is also noted for the natural soils, which is based on the standard penetration resistance (N-value).

The boring locations are shown on Figure 2 in Appendix A. The borings were located in the field and surface elevations provided by Bolton and Menk.

4.2 LABORATORY TESTING

The laboratory test program included moisture content, unit weight, Atterberg Limits, and

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unconfined compressive strength analysis. The test results appear in Appendix A on the individual boring logs adjacent to the samples upon which they were performed, or on the data sheets following the logs.

5.0 SITE CONDITIONS

5.1 SURFACE OBSERVATIONS

The proposed project site is located at 50725 State Highway 28 in Morris Minnesota. Nearby site features include the existing airport structures and pavements followed by farmland in all directions. Current site vegetation consists of grass and trees outside of the existing pavement areas.

The general site topography is level to gently rolling. Based on the soil boring elevations, surface elevations at boring locations ranged from 1132.1 to 1132.4 feet.

5.2 SUBSURFACE SOILS/ GEOLOGY

The site geology consists of fill/topsoil underlain by various alluvial deposits with clay till present at depth.

The surficial fill/topsoil layer was about 2½ to 7½ feet deep at the boring locations. The fill consisted mostly of brown and black sandy lean clay. The topsoil consisted mostly of black, sandy lean clay with numerous visible organics.

Underlying the surficial deposits, brown, grayish brown, and brown mottled, mostly lean clay and elastic silt alluvial deposits were encountered at the boring locations. Based upon the penetration resistance, N values, the consistency of the more cohesive portions varied from soft to firm.

The main geologic deposit encountered at the site consisted of sandy lean clay glacial till. The till was brown mottled in color. Additionally, the till contained some gravel and numerous lenses and layers of sand. The consistency of the till varied from firm to stiff.

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5.3 GROUNDWATER

No free subsurface water was observed at the boring locations at the time our field work was performed. The borings were monitored for groundwater seepage during drilling operations and were measured for groundwater accumulation shortly after completion of drilling. Free water did not develop with the boreholes during drilling and when measured shortly after completing the borings. Groundwater levels fluctuate due to varying seasonal and annual rainfall and snow melt amounts, as well as other factors.

Based upon our previous experience with clay soils in the general project area, it is our opinion that the subsurface water levels at the site could be quite near the ground surface during periods of significant precipitation, particularly during the spring of the year. It should also be recognized that groundwater levels can fluctuate due to natural seasonal variations.

5.4 REVIEW OF SOIL PROPERTIES

5.4.1 UNDOCUMENTED FILL/TOPSOIL

We have no documentation regarding the extent of excavation made prior to placing the fill, nor do we have reports indicating fill soil density and water content quality control procedures. Fill soils that are placed without density and water content quality control procedures can behave unpredictably when subject to structural loads. As such, we judge the fill to have unpredictable strength and compressibility characteristics. Sandy lean clays are fine-grained soils that are slow-draining and susceptible to freeze-thaw movements.

The topsoil consisted mostly of black, sandy lean clay with numerous visible organics. The topsoil deposits are judged to be low strength and compressible under anticipated footing loadings.

5.4.2 GLACIAL TILL

The main geologic deposit encountered at the site consisted of sandy lean clay glacial till. The till was brown mottled in color. Additionally, the till contained some gravel and

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numerous lenses and layers of sand. N-values recorded in the glacial till ranged from 5 to 13 blows per foot (bpf); indicating these soils exhibit firm to stiff consistency. Accordingly, we judge the glacial till to have moderate strength and moderately low compressibility when subject to the anticipated structural loads. The sandy lean clay is a slow-draining soil type that is susceptible to freeze-thaw movements when subject to freezing temperatures.

5.4.3 FINE ALLUVIUM

The N-values recorded in the fine alluvium ranged from 4 to 7 bpf, indicating these soils exhibit soft to firm consistency. We judge the fine-alluvium to have low to moderate strength and compressibility characteristics. The lean clay is a slow-draining soil type that is susceptible to freeze-thaw movements when subject to freezing temperatures. The elastic silt fine alluvial soils are generally a slow draining soil type with moderate to high susceptibility to freeze-thaw frost movements.

Laboratory testing to determine the swelling and shrinkage properties of the elastic silt was not conducted. Based upon our Atterberg Limit test results, the elastic silt has the potential to shrink when the moisture content decreases and to swell when the moisture content increases. The elastic silt soils have a tested in-situ moisture of 34% with a liquid limit of 59% and a plastic limit of 33%. The risk of expansion is greatest when the elastic silt is relatively dry/desiccated, and the potential for shrinkage is greatest when the elastic silt is relatively soft and has a higher moisture content.

5.5 SEISMIC SITE CLASSIFICATION

Based on the soil boring information this site would be considered to have a soil site classification of 'D', in accordance with Section 1613.5.2 of the 2021 International Building Code and Chapter 20 of ASCE 7-16.

6.0 RECOMMENDATIONS**6.1 APPROACH DISCUSSION**

As previously discussed, the fill soils observed in our borings is undocumented, or placed without quality control procedures for moisture content and unit weight. Fill soils placed

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without documentation pose a significant risk to new buildings and other settlement-sensitive structures because we cannot predict how these soils will respond when subject to structural loads.

In order to provide reliable support to the new building, we recommend the complete removal and replacement of the existing undocumented fill soils and topsoil with compacted structural fill. Estimated excavation depths required to remove the existing fill/topsoil, based on our boring data, are provided in the following section.

The existing topsoil/fill is not judged suitable for building or floor slab support. Excavation of this material from within the building area is necessary. Also, some of the soft, clayey soil may not be suitable and may also have to be partially replaced. Based upon the laboratory tests results, the natural alluvium present at the site contains areas of elastic silt. These soils are sensitive to volume change due to corresponding changes in soil moisture content. These deposits have the potential for volume change with changes in soil moisture content and also consolidation due to increases in loading. The surrounding structures are likely supported on similar soils; we are not aware of any significant problems which have occurred.

To reduce the potential detrimental effects of the elastic silt soils, we recommend removal of the elastic silt soils to a minimum depth of 2 feet below all proposed footings and floor slabs. This would also include any interior footings. Granular fill should be placed and compacted to bring the area back to footing grade.

The above minimum granular depth below the footings and floor slabs is for cut areas within the building. For fill areas where a fill greater than those minimum depths is needed, we recommend that granular engineered fill be used within the building footprint and oversize areas. We do not recommend reusing the elastic silt or fat clay soils as fill within the building area.

To reduce the risk of movement of the bearing strata with this moderate risk approach, good drainage must be maintained during and after construction. For this reason we recommend that the excavations be left open a minimal amount of time. Also, we suggest

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avoiding the planting of deep rooted trees within 25 feet of the building to minimize changes in the moisture content of the subsurface soils. Additionally, the ground floor slab should be structurally independent of walls and columns and all footings should be founded below the depth of seasonal moisture change.

6.2 BUILDING GRADING

6.2.1 EXCAVATION

To prepare the building area for foundation and slab support, we recommend complete excavation of the fill and topsoil. This would result in excavation depths at the boring locations as shown in Table 6.2.1.

Table 6.2.1 – Recommended Excavation Depths

Boring Location	Surface Elevation (ft)	*Excavation Depth (ft)	*Approximate Excavation Elevation (ft)
1	1132.1	4½	1127½
2	1132.4	7½	1125

**Estimated to the nearest half foot, additional excavation may be required to reach footing depth or for placement of the minimum 2-foot granular separation layer.*

The recommended excavation depths in Table 6.2.1 will likely extend below the foundation bearing elevation of the new building. Where the excavation extends below foundation grade, the excavation bottom and resultant engineered fill system must be oversized laterally beyond the planned outside edges of the foundations to properly support the lateral loads exerted by that foundation. This excavation/engineered fill lateral extension should at least be equal to the vertical depth of fill needed to attain foundation grade at that location (i.e., 1:1 lateral oversize).

The risk of soil disturbance increases significantly when water is present. The amount of water encountered by the excavation at the site will be dependent upon seasonal fluctuations, the excavation depths required and the amount of sands encountered. Because of the impermeable nature of the majority of the subsurface soils present at the

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boring locations, it likely would be possible to control water entering into the excavation with normal sump pumping procedures. However, given the possibility of lenses and layers of sand, more intricate dewatering techniques may be required depending upon the subsurface water levels present during construction and the excavation of depths required. Any water which does collect in the open excavation should be quickly removed and surface drainage away from the excavation should be provided during construction. The natural soils present at the recommended bottom of excavation elevation will be extremely sensitive to disturbance during construction. To reduce the risk of soil disturbance, the excavation should be performed using an excavator equipped with a smooth bucket. Additionally, heavy construction equipment should not be allowed in the base of the excavation to reduce soil disturbance. The recommended excavation and backfill operation should be performed in a timely manner to minimize disturbance of the soils present at the site.

Any tile or utility lines present should be rerouted around the building area.

Portions of the newly proposed construction will be adjacent to the existing hangar structure. Care will be required during the excavation process so that support for the existing structure is not reduced. Structure monitoring may be required pending the proximity of the excavation to the existing structure. AET should be allowed an opportunity to review the project construction plans to evaluate the need for structure monitoring.

6.2.2 FILL PLACEMENT AND COMPACTION

Fill placed to attain grade for foundation and floor slab support should be compacted in thin lifts, such that the entire lift achieves a minimum compaction level of 98 percent of the material's standard maximum dry unit weight per ASTM D698 (Standard Proctor test). Fill soils should be moisture conditioned (e.g. wetted or dried) to within $\pm 2\%$ of their optimum moisture content per the standard Proctor test (ASTM D:698).

We recommend using a granular material with a maximum size of 2 inches and less than 12% fines. If the contractor proposes a different type of fill, a sample should be submitted to the Geotechnical Engineer for approval.

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In areas where new fill will be placed on sloping ground, we recommend benching the surface prior to placing the fill. Benching is recommended where slopes are steeper than 4:1 (horizontal:vertical).

For a sand fill, we recommend maximum lift thicknesses on the order of 1'. We recommend compacting with a moderately heavy, vibratory compactor.

Any fill placed in or near water should be medium/coarse grained, free draining sand with less than 40% passing the #40 sieve and 5% passing the #200 sieve. Additionally, the initial lift of fill should be about 2 feet to lessen the risk of disturbing the natural soils present at the site.

6.3 FOUNDATION DESIGN

In our opinion, the structure can be supported on conventional spread foundations. We recommend perimeter foundations for heated building space is placed such that the bottom is a minimum of 42 inches below exterior grade. Interior column foundations in heated space can be placed at shallow depths below the floor slab. We recommend foundations for unheated building space (such as canopy foundations) or adjacent to areas where snow removal will occur be extended to a minimum of 60 inches below exterior grade.

Based on the conditions encountered, it is our opinion the building foundations can be designed based on a net maximum allowable soil bearing pressure of 2,500 psf. Our foundation design assumptions include a minimum factor of safety of 3 with respect to the ultimate soil bearing capacity. We judge that total settlements under this loading should not exceed 1 inch. We also judge that differential settlements of conditions depicted by the borings should not exceed ½ inch.

6.4 FLOOR SLAB DESIGN

Preparation of the building areas as previously discussed in Section 6.2 (removing fill/topsoil and softer natural soils and providing proper engineered fill materials) will also

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prepare the building areas for floor slab support. To provide a uniform, stable subgrade for floor slab support, we recommend at least 4 inches of crushed aggregate or MnDOT Class 5 subbase be incorporated with the floor design for the proposed structures.

For floor slab design, it is our opinion that compacted engineered fill and 4 inches of crushed aggregate base would be capable of providing a soil modulus of subgrade reaction (k-value) of 150 pounds per cubic inch (pci).

For recommendations pertaining to moisture and vapor protection of interior floor slabs, we refer you to the attached standard sheet entitled "Floor Slab Moisture/Vapor Protection."

7.0 CONSTRUCTION CONSIDERATIONS

7.1 POTENTIAL DIFFICULTIES

7.1.1 RUNOFF WATER IN EXCAVATION

Water can be expected to collect in the excavation bottom during times of inclement weather or snow melt. To allow observation of the excavation bottom, to reduce the potential for soil disturbance, and to facilitate filling operations, we recommend water be removed from within the excavation during construction. Based on the soils encountered, we anticipate the groundwater can be handled with conventional sump pumping.

7.1.2 DISTURBANCE OF SOILS

The on-site soils can be disturbed under construction traffic, especially if the soils are wet. If soils become disturbed, they should be subcut to the underlying undisturbed soils. The subcut soils can then be dried and recompacted back into place, or they should be removed and replaced with drier imported fill.

7.1.3 COBBLES AND BOULDERS

The soils at this site can include cobbles and boulders. This may make excavating procedures somewhat more difficult than normal if they are encountered.

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**7.1.4 WINTER CONSTRUCTION**

If construction occurs during the winter, it is necessary for the contractor to protect the base soils from freezing each day and each night before new fill is placed. Fill should not be placed over frozen soils, snow, or ice, nor should the use of frozen fill soils be permitted. The contractor must protect base soils from freezing before and after fill placement, and before, during, and after concrete placement. If the interior footings will be exposed to freezing temperatures during construction, we recommend that you consider lowering the footings to protect against frost penetration into the footing subgrade soils. We recommend that a special pre-construction meeting be held to discuss the procedures and precautions that must be followed.

7.2 EXCAVATION BACKSLOPING

If excavation faces are not retained, the excavations should maintain maximum allowable slopes in accordance with *OSHA Regulations (Standards 29 CFR), Part 1926, Subpart P, "Excavations"* (can be found on www.osha.gov). Even with the required OSHA sloping, water seepage or surface runoff can potentially induce sideslope erosion or sloughing which could require slope maintenance.

7.3 OBSERVATIONS 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 observation by a geotechnical engineer/technician during construction to evaluate these potential changes. Soil density testing should also be performed on new fill placed in order to document that project specifications for compaction have been satisfied.

8.0 ASTM STANDARDS

When we refer to an ASTM Standard in this report, we mean that our services were performed in general accordance with that standard. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

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9.0 LIMITATIONS

Within the limitations of scope, budget, and schedule, we have endeavored to provide our services according to generally accepted geotechnical engineering practices at this time and location. Other than this, no warranty, express or implied, is intended.

Important information regarding risk management and proper use of this report is given in Appendix B entitled “Geotechnical Report Limitations and Guidelines for Use.”

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Standard Data Sheets

Floor Slab Moisture/Vapor Protection
Freezing Weather Effects on Building Construction

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) 302.1R-15, a “base material” is recommended over the vapor membrane, rather than the conventional clean “sand cushion” material. The base layer should be a minimum of 4 inches (100 mm) thick, trimmable, compactable, granular fill (not sand), a so-called crusher-run material. Usually graded from 1½ inches to 2 inches (38 to 50 mm) down to rock dust is suitable. Following compaction, the surface can be choked off with a fine-grade material. We refer you to ACI 302.1R-15 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 under floor 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 installation of a vapor membrane to limit the 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:

- A lower 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.

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 40% by weight passing a #40 sieve and no more than 5% by weight 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 polystyrene 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 A

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
Figure 1 – Site Location
Figure 2 – Boring Locations
Subsurface Boring Logs

Appendix A
Geotechnical Field Exploration and Testing
Report No. P-0044323

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling and sampling 2 standard penetration test borings. The locations of the borings appear on Figure 2, preceding the Subsurface Boring Logs in this appendix.

A.2 SAMPLING METHODS

A.2.1 Split-Spoon Samples (SS)

Standard penetration (split-spoon) samples were collected in general accordance with ASTM: D1586. The ASTM test method consists of driving a 2-inch O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven a total of 18 inches 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.

A.2.2 Disturbed Samples (DS)/Spin-up Samples (SU)

Sample types described as “DS” or “SU” on the boring logs are disturbed samples, which are taken from the flights of the auger. Because the auger disturbs the samples, possible soil layering and contact depths should be considered approximate.

A.2.3 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.

Determining the thickness of “topsoil” layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification (USC) system. The USC system is described in ASTM: D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM: D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USC system, the descriptive terminology, and the symbols used on the boring logs.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

A.4 WATER LEVEL MEASUREMENTS

The groundwater 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.

Appendix A
Geotechnical Field Exploration and Testing
Report No. P-0044323

A.5 LABORATORY TEST METHODS

A.5.1 Water Content Tests

Conducted per AET Procedure 01-LAB-010, which is performed in general accordance with ASTM: D2216 and AASHTO: T265.

A.5.2 Atterberg Limits Tests

Conducted per AET Procedure 01-LAB-030, which is performed in general accordance with ASTM: D4318 and AASHTO: T89, T90.

A.5.3 Sieve Analysis of Soils (thru #200 Sieve)

Conducted per AET Procedure 01-LAB-040, which is performed in general conformance with ASTM: D6913, Method A.

A.5.4 Particle Size Analysis of Soils (with hydrometer)

Conducted per AET Procedure 01-LAB-050, which is performed in general accordance with ASTM: D422 and AASHTO: T88.

A.5.5 Unconfined Compressive Strength of Cohesive Soil

Conducted per AET Procedure 01-LAB-080, which is performed in general accordance with ASTM: D2166 and AASHTO: T208.

A.5.6 Laboratory Soil Resistivity using the Wenner Four-Electrode Method

Conducted per AET Procedure 01-LAB-090, which is performed using Soil Box apparatus in the laboratory in general accordance with ASTM: G57

A.5.7 Organic Content Tests

Conducted per AET Procedure 20-SOI-010, which is performed in general accordance with ASTM D2974, Test Method C.

A.6 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.7 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

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		Notes ^A Based on the material passing the 3-in (75-mm) sieve. ^B If field sample contained cobbles or boulders, or both, add “with cobbles or boulders, or both” to group name. ^C Gravels 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 ^D Sands 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	
				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≥4 and 1≤Cc≤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≥6 and 1≤Cc≤3 ^E	SW	Well-graded sand ^I		
			Cu<6 and/or 1>Cc>3 ^E	SP	Poorly-graded sand ^I		
		Sands with Fines more than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G,H,I}		
			Fines classify as CL or CH	SC	Clayey sand ^{G,H,I}		
		Fine-Grained Soils 50% or more passes the No. 200 sieve (see Plasticity Chart below)	Silts and Clays Liquid limit less than 50	inorganic	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}
organic	Liquid limit—oven dried <0.75 Liquid limit – not dried			OL	Organic clay ^{K,L,M,N} Organic silt ^{K,L,M,O}		
Silts and Clays Liquid limit 50 or more	inorganic		PI plots on or above “A” line	CH	Fat clay ^{K,L,M}		
			PI plots below “A” line	MH	Elastic silt ^{K,L,M}		
	organic		Liquid limit—oven dried <0.75 Liquid limit – not dried	OH	Organic clay ^{K,L,M,P} Organic silt ^{K,L,M,Q}		
	Highly organic soil		Primarily organic matter, dark in color, and organic in odor	PT	Peat ^R		

SIEVE ANALYSIS

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)

Calculations:
 $C_u = \frac{D_{60}}{D_{10}} = \frac{15}{0.075} = 200$
 $C_c = \frac{(D_{30})^2}{D_{60} \times D_{10}} = \frac{2.5^2}{0.075 \times 15} = 5.6$

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)

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, soil 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.

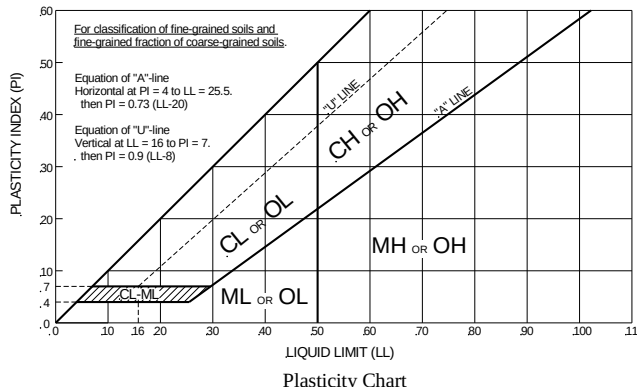
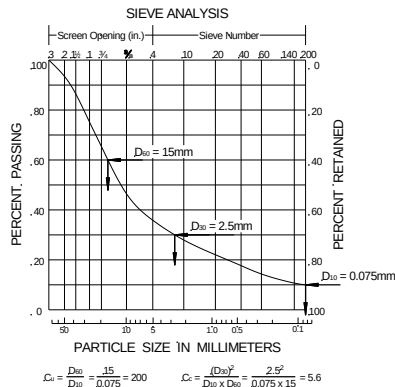
^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI 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 (MC Column)		Layering Notes		Peat Description		Organic Description (if no lab tests)	
D (Dry):	Absence of moisture, dusty, dry to touch.	Laminations:	Layers less than 1/4" thick of differing material or color.	Term	Fiber Content (Visual Estimate)	Soils are described as <i>organic</i> , if soil is not peat and is judged to have sufficient organic fines content to influence the Liquid Limit 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").			Fibric Peat:	Greater than 67%	Root Inclusions	
W (Wet/ Waterbearing):	Free water visible, intended to describe non-plastic soils. Waterbearing usually relates to sands and sand with silt.	Lenses:	Pockets or layers greater than 1/2" thick of differing material or color.	Hemic Peat:	33 - 67%	With roots:	Judged to have sufficient quantity of roots to influence the soil properties.
F (Frozen):	Soil frozen			Sapric Peat:	Less than 33%	Trace roots:	Small roots present, but not judged to be in sufficient quantity to significantly affect soil properties.

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS

Symbol	Definition
AR:	Sample of material obtained from cuttings blown out the top of the borehole during air rotary procedure.
B, H, N:	Size of flush-joint casing
CAS:	Pipe casing, number indicates nominal diameter in inches
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
DP:	Direct push drilling; a 2.125 inch OD outer casing with an inner 1½ inch ID plastic tube is driven continuously into the ground.
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
RDA:	Rotary drilling with compressed air and roller or drag bit.
RDF:	Rotary drilling with drilling fluid and roller or drag bit
REC:	In split-spoon (see notes), direct push 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.
SS:	Standard split-spoon sampler (steel; 1.5" 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 hammer
WR:	Sampler advanced by static weight of drill rod
94mm:	94 millimeter wireline core barrel
▼:	Water level directly measured in boring
▽:	Estimated water level based solely on sample appearance

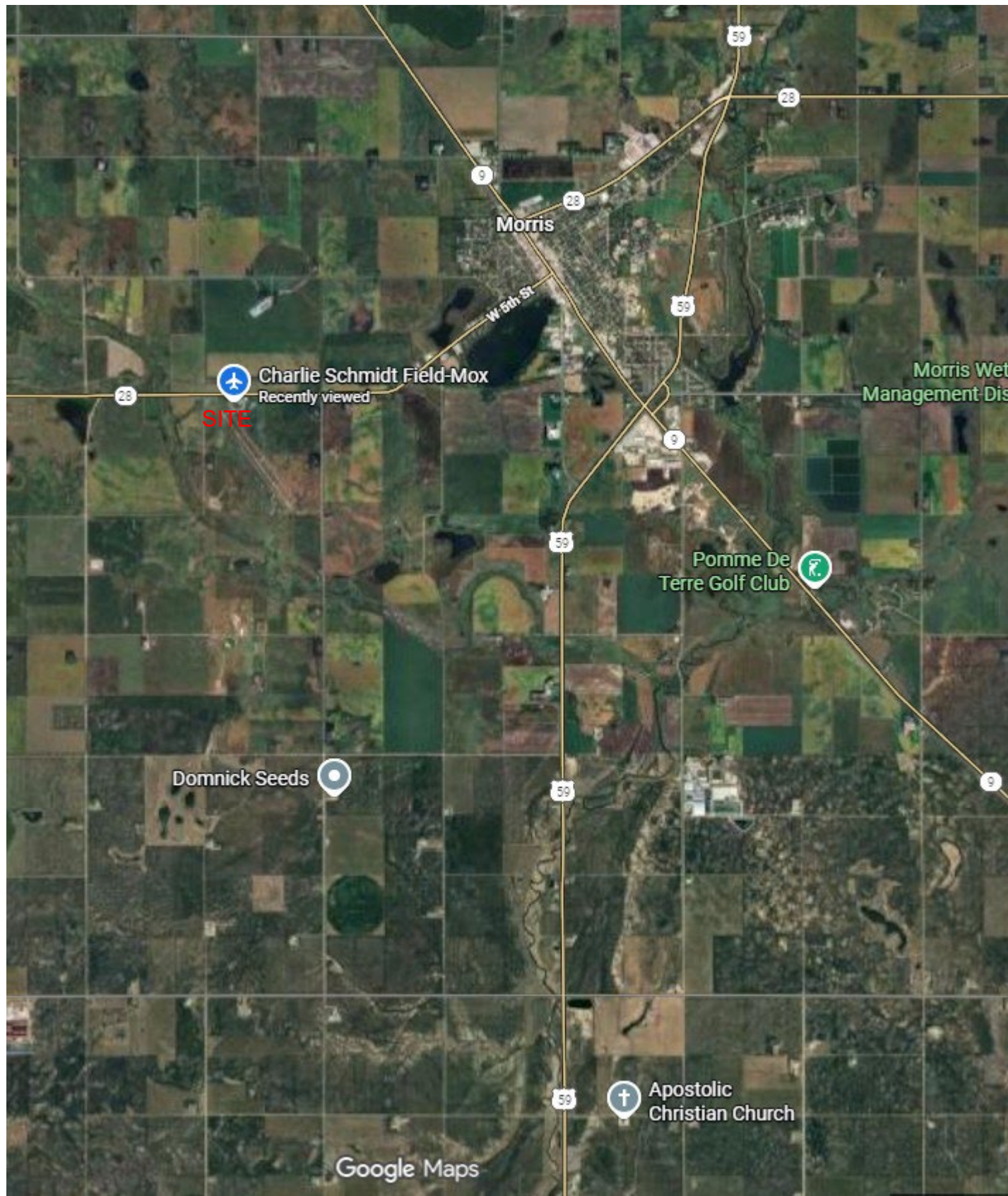
TEST SYMBOLS

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
VSR:	Vane shear strength, remolded (field), psf
VSU:	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 a split-spoon sampler with a drop hammer 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 "REC" 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").



Project: Morris Airport Terminal Building
Morris, MN

Subject: Site Location

Scale: NTS

Drawn By: GG

Checked By: JH

AET Job No. P-0018625

Date: Dec 5, 2025

Figure: 1



Project	Airport Terminal Bldg Morris, MN	Subject:	Boring Locations	AET Job No:	P-0044323	Date:	Jan 16, 2026
Scale:	NTS	Drawn By:	GG	Checked By:	JH	Figure 2	



SUBSURFACE BORING LOG

AET No: **P-0044323** Log of Boring No. **1 (p. 1 of 1)**
 Project: **Morris Airport Terminal Building; Morris, Minnesota**

DEPTH IN FEET	Surface Elevation 1132.1' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	qu
1	SANDY LEAN CLAY, black, very moist (CL-OL)	TOPSOIL		M	HSAS						
2											
3	LEAN CLAY, brown, very moist, soft (CL)	FINE ALLUVIUM	4	M	SS	10	26				
4											
5	ELASTIC SILT, brown mottled, very moist, firm (MH)		7	M	SS	18	34		59	33	
6											
7	LEAN CLAY, grayish brown, very moist, firm (CL)		7	M	SS	18	29				
8											
9											
10			5	M	SS	18	29	94			
11											
12	SANDY LEAN CLAY, with a little gravel, brown mottled, very moist to moist, firm to stiff (CL)	TILL		M	3T		24	103			3200
13			6	M	SS	18	23				
14			5	M	SS	18	23				
15											
16											
17											
18											
19											
20			13	M	SS	18	19				
21											
22											
23											
24			11	M	SS	18					
	END OF BORING										

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	
0-23'	3.25" HSA	12/16/25		24.5'	23'	24.5'		None	
		12/16/25		24.5'	---	22'		None	
BORING COMPLETED: 12/16/25									
DR: BK LG: AK Rig: 4									

AET CORP P-0044323.GPJ AET+CPT+WELL.GDT 1/23/26



SUBSURFACE BORING LOG

AET No: **P-0044323** Log of Boring No. **2 (p. 1 of 1)**
 Project: **Morris Airport Terminal Building; Morris, Minnesota**

DEPTH IN FEET	Surface Elevation 1132.4' MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS				
							WC	DEN	LL	PL	qu
1	FILL, ORGANIC SANDY LEAN CLAY, dark brown and black, very moist	FILL		M	HSAS						
2	FILL, SANDY LEAN CLAY, with a little gravel, dark brown and black, very moist		4	M	SS	12					
3											
4											
5			2	M	SS	10					
6											
7											
8	SANDY LEAN CLAY, with a little gravel, brown mottled, very moist to moist, firm to stiff (CL)	TILL	7	M	SS	18	21				
9											
10			7	M	SS	14	21				
11											
12											
13			7	M	SS	18	21				
14											
15			7	M	SS	18	22	102			
16											
17											
18											
19											
20			10	M	SS	18	16				
21											
22											
23											
24			12	M	SS	18					
END OF BORING											

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	
0-23'	3.25" HSA	12/16/25		24.5'	23'	24.5'		None	
		12/16/25		24.5'	---	22'		None	
BORING COMPLETED: 12/16/25									
DR: BK LG: AK Rig: 4									

AET CORP P-0044323.GPJ AET-CPT-WELL.GDT 1/23/26

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Report No. P-0044323

B.1 REFERENCE

This appendix provides information to help you manage your risks relating to subsurface problems which are caused by construction delays, cost overruns, claims, and disputes. This information was developed and provided by GBA¹, of which, we are a member firm.

B.2 RISK MANAGEMENT INFORMATION

B.2.1 Understand the Geotechnical Engineering Services Provided for this Report

Geotechnical engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical engineering services is typically a geotechnical engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

B.2.2 Geotechnical Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client.

Likewise, geotechnical engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

¹ Geoprosessional Business Association, 15800 Crabbs Branch Way, Suite 300, Rockville, MD 20855
Telephone: 301/565-2733: www.geoprosessional.org, 2019

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Report No. P-0044323

B.2.3 Read the Full Report

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. Read and refer to the report in full.

B.2.4 You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, always inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

B.2.5 Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

B.2.6 This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations only after observing actual subsurface conditions exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.

B.2.7 This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

B.2.8 Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical engineering report, along with any attachments or appendices, with your contract documents, but be certain to note conspicuously that you've included the material

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Report No. P-0044323

for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, only from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and be sure to allow enough time to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

B.2.9 Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

B.2.10 Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical engineering study. For that reason, a geotechnical engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated subsurface environmental problems have led to project failures. If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

B.2.11 Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. Geotechnical engineers are not building-envelope or mold specialists.

HAZARDODOUS MATERIAL REPORT

ASBESTOS AND REGULATED WASTE INSPECTION REPORT

Morris Municipal Airport
50725 State Highway 28
Morris, MN 56267

AET Project No. P-0044344

Report Date: December 16, 2025



Prepared for:

Bolten & Menk, Inc.
121 Washington Avenue North, Suite 400
Minneapolis, MN 55401

December 16, 2025

Bolton & Menk, Inc.
121 Washington Avenue North, Suite 400
Minneapolis, MN 55401

Attn: Silas Parmar, Aviation Project Manager, Principal Circle K Stores, Inc.
Submitted via Email: silas.parmar@bolton-menk.com

RE: Asbestos and Regulated Waste Inspection Report
Morris Municipal Airport
50725 State Highway 28
Morris, MN 56267
AET Project No. P-0044344

Dear Mr. Parmar:

American Engineering Testing, Inc. has completed the enclosed report of Asbestos and Regulated Waste Inspection services for the Morris Municipal Airport located at 50725 State Highway 28, Morris, Minnesota. This service was performed in accordance with our proposal agreement no. P-0044344.

We appreciate the opportunity to have been of service to you on this project. If you have any questions regarding the information presented in this Asbestos and Regulated Waste Inspection Report or if we can be of additional assistance, please contact me.

Sincerely,
American Engineering Testing, Inc.

Bruce Boehm-Carlson
Senior Scientist
E-mail: bboehmcarlson@teamaet.com
Phone: 651-999-1387

Enclosure

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- A. Explanation of Tables
- B. Material Identification and Inventory
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- E. MPCA Pre-Demolition Environmental Checklist and Guide
- F. Photographic Log
- G. Laboratory Credentials
- H. AET Certifications

EXECUTIVE SUMMARY

American Engineering Testing, Inc. (AET) was authorized by the Bolton & Menk, Inc. (Client) to conduct an asbestos and regulated waste inspection of the Morris Municipal Airport located at 50725 State Highway 28, Morris, Minnesota (Site). The purpose for the asbestos and regulated waste inspection was to identify, sample and quantify suspect asbestos-containing building materials as required by the U.S. Environmental Protection Agency (EPA). In addition, AET identified regulated waste, which are referenced in the Pre-Demolition Environmental Checklist and Guide prepared by the Minnesota Pollution Control Agency (MPCA). Services performed by AET were conducted in accordance with our Proposal No. P-0044344.

Bruce A. Boehm Carlson (ASB 672), a certified Minnesota Asbestos Building Inspector completed the inspection on December 11, 2025. AET collected a total of 29 samples of suspect ACM and identified numerous individual items of regulated wastes at the Site.

The materials that were sampled and tested were found to **not contain** asbestos.

Salvage, reuse, recycle or properly dispose of the numerous regulated waste materials identified at the Site prior to commencing with renovation activities.

Complete and submit the Notifications of Intent to Perform Asbestos Abatement and/or Demolition forms to the MPCA and MDH. The MPCA requires a 10-working day notification period and the MDH requires a 5-calendar day notification prior to commencing with renovation/demolition activities.

If untested suspect asbestos-containing materials or potential lead containing paints/coatings are identified during renovation, do not disturb the materials, and contact AET for consultation or follow-up testing. Notify the general contractor of the location and quantity of asbestos and regulated waste items at the Site.

1.0 INTRODUCTION

1.1 Purpose

This report presents the results of the asbestos and regulated waste Inspection conducted at the Morris Municipal Airport located at 50725 State Highway 28, Morris, Minnesota (Site). American Engineering Testing, Inc. (AET) completed the inspection at the request of the Bolton & Menk, Inc. (Client). The inspection was performed to facilitate demolition of the structure.

The purpose for the asbestos and regulated waste inspection was to identify, sample and quantify suspect asbestos-containing building materials (ACBMs) as required by the Environmental Protection Agency (EPA) and identify regulated wastes according to the Minnesota Pollution Control Agency's (MPCA) Pre-Demolition Environmental Checklist and Guide.

1.2 Scope of Inspection

AET's scope of services included the following tasks:

- Conduct a visual inspection for the presence of ACBM.
- Collect representative bulk samples of suspect ACBMs for analysis.
- Submit the bulk samples of suspect materials to an accredited National Voluntary Laboratory Accreditation Program (NVLAP) laboratory for analysis of asbestos content. Laboratory certifications can be found in Appendix G.
- Identify and quantify items that potentially contain regulated waste materials such as mercury, polychlorinated biphenyls (PCBs), chlorofluorocarbons (CFCs), and other materials that need to be removed from the building prior to demolition. These items include, but are not limited to, thermostats, switches, fluorescent lights, batteries, transformers, light ballasts, refrigeration units, chillers, and door closers.
- Prepare a final report summarizing the results of the assessment.

1.3 Limitations

No limitations were encountered during the inspection.

2.0 ASBESTOS AND REGULATED WASTE INSPECTION PROCEDURES

2.1 General Information

The Inspection was conducted on December 11, 2025, by Bruce A. Boehm Carlson (ASB 672), a certified Minnesota Asbestos Building Inspector. AET collected a total of 29 samples of suspect ACBM

and identified numerous items that qualify as regulated waste per the MPCA Pre-Demolition Environmental Checklist and Guide.

Suspect asbestos inspection, sampling and analytical procedures were performed in accordance with Minnesota Rules 4620.3000 – 4620.3724; EPA Asbestos Hazard Emergency Response Act (AHERA) 40 CFR Part 763, Subpart E; EPA National Emission Standard for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61; and the Occupational Safety and Health Administration (OSHA) rules and regulations, Asbestos Standards for General Industry 29 CFR 1910.1001 and Asbestos Standards for the Construction Industry 29 CFR 1926.1101.

Asbestos samples were analyzed utilizing polarized light microscopy (PLM) by Eurofins International Asbestos Testing Laboratories, a NVLAP accredited laboratory (NVLAP Lab No. 101165-0). Other potential regulated wastes were inventoried according to the MPCA Pre-Demolition Environmental Checklist and Guide.

2.2 Function of Inspection

The EPA NESHAP requires building owners to inspect for ACBM in areas of a building where renovation or demolition will take place. The MPCA regulates the removal and disposal of regulated waste as outlined in the MPCA Pre-Demolition Environmental Checklist and Guide.

All manufactured and some natural products are considered suspect ACBM. Materials that are considered to be non-suspect are wood, metal, glass, and fiberglass. Prior to renovation or demolition of a building, all regulated friable ACBM must be removed from the affected area. In addition, non-friable materials, which are in a damaged condition or are likely to become friable during the process of renovation or demolition also require removal. Non-friable materials, which are in good condition at the time of inspection and most likely will not become friable during demolition may, under certain circumstances, remain in place prior to demolition. EPA and OSHA define any building material which contains greater than one percent asbestos to be asbestos-containing material. It is also required to point-count by PLM the percent asbestos in friable asbestos-containing material (ACM) estimated to contain less than one percent asbestos.

The MPCA regulates the removal and disposal of regulated waste, as outlined in the MPCA Pre-Demolition Environmental Checklist and Guide.

3.0 ASBESTOS AND REGULATED WASTE INSPECTION RESULTS

3.1 Asbestos-Containing Materials

See Figure 1 for the locations of the asbestos samples. See Table 1 for a summary of non-asbestos containing building materials. Please see Appendix B for all material locations. The asbestos analytical laboratory report is included in Appendix C. Photographs are included in Appendix F. Laboratory credentials are included in Appendix G. Personnel certifications are included in Appendix H.

The materials that were sampled and tested were found to **not contain** asbestos.

3.2 Regulated Wastes

AET inventoried the regulated wastes at the Site. A summary of the regulated waste materials is provided in Table 2. Please see Appendix B for all material locations.

Salvage, reuse, recycle or properly dispose of the numerous regulated waste materials identified at the Site prior to commencing with renovation activities.

4.0 RECOMMENDATIONS

Based on the results of this investigation, AET recommends the following:

- Salvage, reuse, recycle or properly dispose of the numerous regulated objects identified at the Site prior to commencing with demolition activities.
- Complete and submit the Notifications of Intent to Perform Asbestos Abatement and/or Demolition forms to the MPCA and MDH. The MPCA requires a 10-working day notification period and the MDH requires a 5-calendar day notification prior to commencing with renovation activities. The form is available at: <https://www.pca.state.mn.us/sites/default/files/w-sw4-21.pdf>.
- Obtain all required local permits.
- Prepare a general environmental contingency management plan for addressing potential situations that may arise during the renovation project. Example contingencies might include management of petroleum, management of spilled fluids or other unknown regulated items encountered during the demolition and Site excavation.
- During the demolition activities, if additional suspect asbestos containing materials are discovered, do not disturb the materials, and contact AET for consultation or follow-up testing.

5.0 GENERAL REMARKS

5.1 Standard of Care

Bulk asbestos sample collection and analysis was conducted in accordance with EPA and MDH-required methodology. Other potential regulated wastes were inventoried per the MPCA Pre-Demolition Environmental Checklist and Guide.

This report summarizes the results of the inspection completed by AET. This inspection and review of the subject property have been limited in scope in that it was undertaken with the knowledge that visual observations and random sampling methods alone might not reveal the presence, full nature, and extent of all ACBM and other regulated wastes in the building. **AET makes no representations as to the asbestos content of materials not sampled or that were not accessible to our inspector(s) (i.e., between walls, beneath floors, in sealed pipe chases, etc.). The ACBM and other regulated**

wastes sample locations and building dimensions were visually estimated. Therefore, the sample locations, building dimensions and approximate square footages of ACBM should be considered accurate only to the degree implied by the methods used.

This asbestos and regulated wastes inspection is not intended to be the sole basis for asbestos and regulated waste removal bids. Confirmation of the presence, condition, and quantity of the ACBM's and other regulated waste should be conducted by prospective removal contractors prior to accepting removal bids. This report is provided for the exclusive use of the client noted on the cover page and is subject to the terms and conditions in the applicable contract between the Client and AET. The Client is the only party to whom AET has explained the limitations of this inspection and has been involved in the shaping of the scope of services. Any third-party review of this report will be subject to the terms and conditions governing contractual work between the Client and AET. The unauthorized use of, reliance on, or release of information contained in this report, without the expressed written consent of the Client, is strictly prohibited and will be without risk or liability. The services performed by AET on this project have been conducted with a level of care and skill that meets or exceeds industry standards set by reputable members of the profession, practicing in the same locality under similar budget and time constraints. **This inspection does not guarantee all ACBM, or other regulated waste were found.**

5.2 Certifications

I, the undersigned, do hereby certify that I am an accredited Asbestos Building Inspector in the State of Minnesota, certified by the Minnesota Department of Health, No. ASB 672. A photocopy of my current asbestos inspector certification is included in Appendix H.

Report Prepared By:



Bruce Boehm-Carlson

Senior Environmental Project Manager

Phone: (651) 999-1387

Email: bboehmcarlson@teamaet.com

Tables

Table 1 - Summary of Non-Asbestos Containing Building Materials

Client Name: Bolton & Menk, Inc.
 Project Number: P-0044344
 Project Manager: Bruce A. Boehm Carlson
 Sample Set Name: 1

Building Number: 1
 Building Name: Morris Municipal Airport Terminal
 Building Address 1: 50725 State Highway 28
 Building Address 2:
 City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01 01	105	Acoustical Ceiling Texture	S	ND			Friable		7	7
	PC	Popcorn								
Notes: Located throughout the building.										
Floor 01 02	105	Acoustical Ceiling Texture	S	ND			Friable		7	7
	PC	Popcorn								
Notes: Located throughout the building.										
Floor 01 04	105	Acoustical Ceiling Texture	S	ND			Friable		7	7
	PC	Popcorn								
Notes: Located throughout the building.										
Floor 01 06	105	Acoustical Ceiling Texture	S	ND			Friable		7	7
	PC	Popcorn								
Notes: Located throughout the building.										
Floor 01 07	105	Acoustical Ceiling Texture	S	ND			Friable		7	7
	PC	Popcorn								
Notes: Located throughout the building.										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	305	Sheetrock & Taping Compound	M	ND			Friable		7	7
	WC	Walls and Ceilings								
01										
Notes: Located throughout the building.										
Floor 01	305	Sheetrock & Taping Compound	M	ND			Friable		7	7
	WC	Walls and Ceilings								
04										
Notes: Located throughout the building.										
Floor 01	308	Base Cove & Mastic	M	ND			Non-Friable			
	BL	Blue								
01										
Notes: Located in Fl. 01 Rms. 01, 02, 03, 04, 05, and 06.										
Floor 01	308	Base Cove & Mastic	M	ND			Non-Friable			
	BL	Blue								
04										
Notes: Located in Fl. 01 Rms. 01, 02, 03, 04, 05, and 06.										
Floor 01	309	Mastic - Carpet	M	ND			Non-Friable			
	BR	Brown								
01										
Notes: Located in Fl. 01 Rms. 01, 03, 04, and 05.										
Floor 01	309	Mastic - Carpet	M	ND			Non-Friable			
	BR	Brown								
05										
Notes: Located in Fl. 01 Rms. 01, 03, 04, and 05.										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	315	Ceramic Tile	M	ND			Non-Friable			
	LBL	Light Blue								
04										
Notes: Llocated in Fl. 01 Rms. 02, 04, 05, 06, 07, and 08.										
Floor 01	315	Ceramic Tile	M	ND			Non-Friable			
	W	White								
07										
Notes: Located in Fl. 01 Rms. 07 and 08.										
Exterior	320	Brick & Mortar	M	ND			Non-Friable			
	BR	Brown								
Notes:										
Exterior	321	Caulk	M	ND			Non-Friable			
	BR	Brown								
Notes:										
Exterior	321	Caulk	M	ND			Non-Friable			
	R	Red								
Notes:										
Floor 01	321	Caulk	M	ND			Non-Friable			
	W	White								
07										
Notes: Located in Fl. 01 Rms. 07 and 08.										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability	Condition	Damage Potential: Water	Air	Vib	Acc	Cond Rating	ASHERA Rating
Exterior	402	Shingles	M	ND			Non-Friable							
	BR	Brown												
Roof														
Notes:														
Exterior	419	Rubber Membrane	M	ND			Non-Friable							
	B	Black												
Roof														
Notes:														
Floor 01	502	Sink Undercoating	M	ND			Non-Friable							
	W	White												
01														
Notes:														

Table 2 - Summary of Regulated Waste Items.

Client Name: Bolton & Menk, Inc.
 Project Number: P-0044344
 Project Manager: Bruce A. Boehm Carlson
 Sample Set Name: 1

Building Number: 1
 Building Name: Morris Municipal Airport Terminal
 Building Address 1: 50725 State Highway 28
 Building Address 2:
 City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	702 OWC	Emergency Lighting On Wall/Ceiling	RW		1 EA		Non-Friable			
02										
Notes:										
Floor 01	703 OWC	Exit Signs On Wall/Ceiling	RW		1 EA		Non-Friable			
02										
Notes:										
Floor 01	703 OWC	Exit Signs On Wall/Ceiling	RW		1 EA		Non-Friable			
04										
Notes:										
Floor 01	708 OW	Thermostats On Wall	RW		1 EA		Non-Friable			
02										
Notes:										
Exterior	714 IF	LED Bulbs In Fixtures	RW		2 EA		Non-Friable			
Notes:										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		5 EA		Non-Friable			
01										
Notes:										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	714 IF	LED Bulbs In Fixtures	RW		2 EA		Non-Friable			
02										
Notes:										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		3 EA		Non-Friable			
04										
Notes:										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		4 EA		Non-Friable			
05										
Notes:										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		4 EA		Non-Friable			
06										
Notes:										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		6 EA		Non-Friable			
07										
Notes:										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		6 EA		Non-Friable			
08										
Notes:										

Client Name: Bolton & Menk, Inc.
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Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01 03 Notes:	718 IF	Lighting Ballasts In Fixtures	RW		4 EA		Non-Friable			
Floor 01 04 Notes:	718 IF	Lighting Ballasts In Fixtures	RW		4 EA		Non-Friable			
Floor 01 03 Notes:	719 IF	Fluorescent Bulbs In Fixtures	RW		8 EA		Non-Friable			
Floor 01 04 Notes:	719 IF	Fluorescent Bulbs In Fixtures	RW		8 EA		Non-Friable			
Floor 01 05 Notes:	721 OFD	TVs/Monitors On Floor/Desk	RW		1 EA		Non-Friable			
Floor 01 01 Notes:	721 OFS	TVs/Monitors On Floor/Stand	RW		2 EA		Non-Friable			

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
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Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01 04 Notes:	721 OFS	TVs/Monitors On Floor/Stand	RW		2 EA		Non-Friable			
Floor 01 01 Notes:	741 OFW	Fire Extinguishers On Floor/Wall	RW		1 EA		Non-Friable			
Exterior Notes:	742 OG	Air Conditioners On Ground	RW		1 EA		Non-Friable			
Floor 01 06 Notes:	744 OW	Water Fountains On Wall	RW		1 EA		Non-Friable			
Floor 01 01 Notes:	747 MIC	Appliances Microwave	RW		1 EA		Non-Friable			
Floor 01 02 Notes:	747 RFG	Appliances Refrigerator	RW		1 EA		Non-Friable			

Client Name: Bolton & Menk, Inc.
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 City, State Zip: Morris, MN 56267

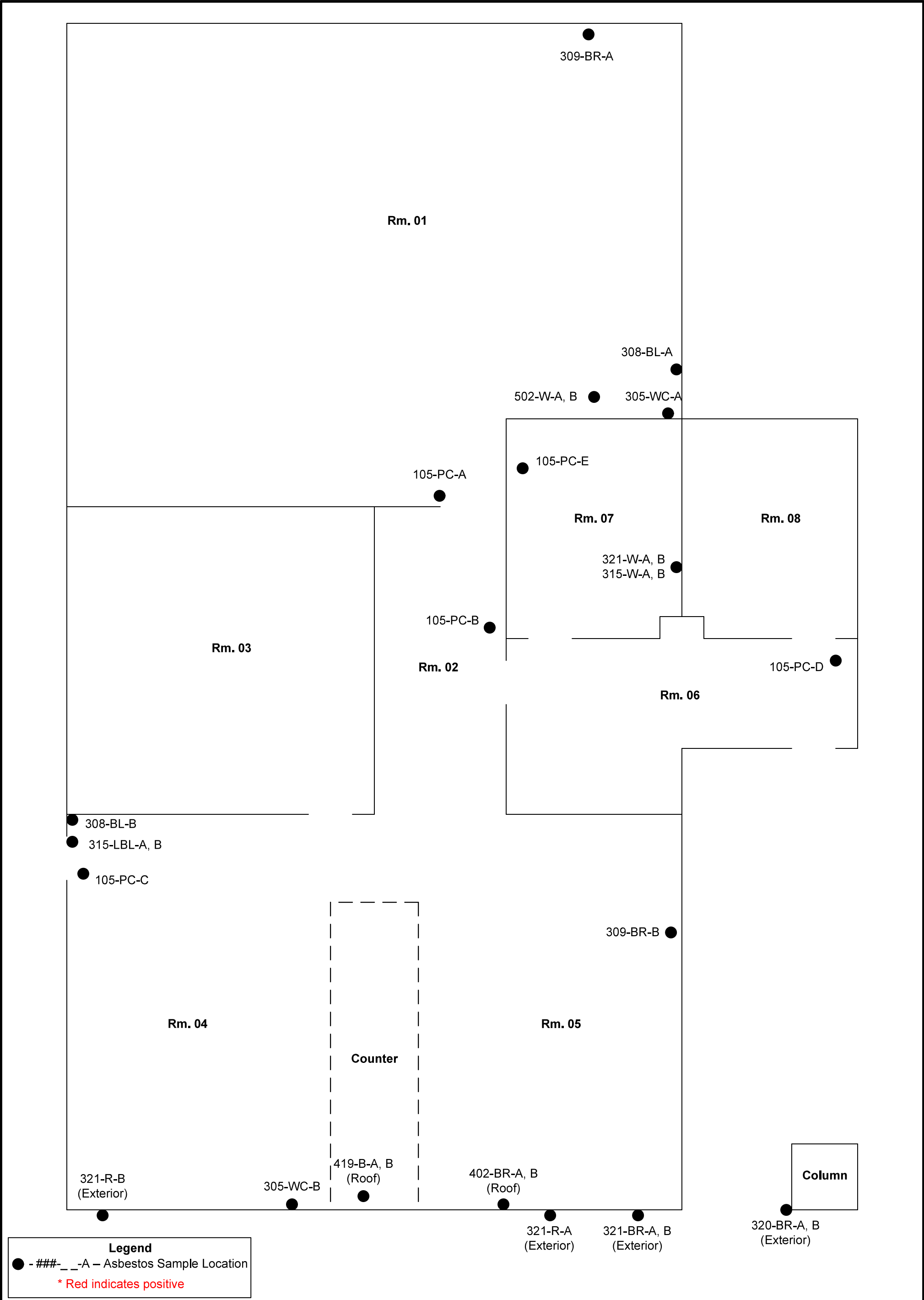
Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	748 OFD	Electronics On Floor/Desk	RW		2 EA		Non-Friable			
05										
Notes:										
Floor 01	748 OFS	Electronics On Floor/Stand	RW		1 EA		Non-Friable			
01										
Notes:										
Floor 01	748 OFSF	Electronics On Floor/Shelf	RW		4 EA		Non-Friable			
05										
Notes:										
Floor 01	754 IC	Exhaust Fan In Ceiling	RW		1 EA		Non-Friable			
07										
Notes:										
Floor 01	754 IC	Exhaust Fan In Ceiling	RW		1 EA		Non-Friable			
08										
Notes:										
Floor 01	761 OD	Door Closers On Door	RW		1 EA		Non-Friable			
04										
Notes:										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	AHERA Rating
Floor 01	761	Door Closers	RW		2 EA		Non-Friable			
06	OD	On Door								
Notes:										

Figures



Appendix A

Explanation of Tables

Appendix A - TABLE FORMAT EXPLANATION

The field data and the laboratory results are presented in the following tabular format:

Appendix B: Material Identification Inventory

- A room by room inventory of material types, quantity, conditions and potential for future disturbance.

Appendix C: Material Sample Analysis

- Indicates the location of bulk sample collection, material description and approximate percentage and type of fibers present.

MATERIAL IDENTIFICATION INVENTORY KEY

Floor, Location, Room – The floor, location, and room refers to where the material was located.

Material Code (Mat'l Code) - Asbestos-containing materials are categorized into three main types:

- 1) Surfacing Material (S): Material in a building that is sprayed-on, troweled-on, or otherwise applied to surfaces.
- 2) Thermal System Insulation (T): Material applied to pipes, fittings, tanks, ducts, etc., to prevent heat loss or gain or serve as condensation control.
- 3) Miscellaneous Material (M): Material on interior structural components, structural members or fixtures, but not including surfacing materials and thermal insulators (e.g., floor and ceiling tiles).

Material Identification - Description of the material found in the location. (NOTE: Pipe diameters are approximate, outside diameters of the insulating materials).

Asbestos Content - This column specifies whether or not the bulk sample, or referenced bulk sample, for the described material tested contains >1% asbestos. ND means "No Asbestos Detected", NS means "Material Is Not Suspect", PRE means "Presumed Asbestos-Containing Material"; NT means "Not Tested". TR means "Trace" (trace = <1%).

Reference Sample Number - The sample number refers to the number assigned to the set of samples collected for the homogeneous material described (refer to Appendix C).

Quantity - The amount of material present. The parameters of each quantity expressed as follows:

- 1) Square Feet (SF)
- 2) Linear Feet (LF)
- 3) Each (EA)

Physical Assessment - This column is divided into two sections describing the condition of the material at the time of the survey.

The first column expressed the friability of the material as follows:

- 1) Friable (F) - The material can be pulverized and reduced to a powder by manual pressure when dry; this could include damaged non-friable materials.
- 2) Non-Friable (N) - The material can not be crumbled using hand pressure.

The second column expressed the conditions of the material at the time of the survey as follows:

- N - Not Damaged
- D - Damaged, the material has deteriorated or sustained physical injury such that it is not intact, less than 25% localized damage or less than 10% overall damage.
- S - Significantly Damaged, the damage is extensive and severe, the asbestos-containing material has sustained greater than 25% localized damage or greater than 10% overall damage.

Damage Potential - This is a group of four columns that address the potential for the material to be disturbed/damaged in the future as follows:

- L - Low potential for damage
- M - Moderate potential for damage
- H - High potential for damage or significant damage

- 1) Air Erosion (Air): The potential for air erosion to a material is determined by the movement of air in the area of the material and the relationship between the friability of the material and its location in respect to air plenums and air streams.
- 2) Vibrational Damage (Vib): This type of damage potential is determined by the presence of sounds, motors, mechanical equipment or other vibrational disturbances.
- 3) Accessibility (Acc): This column indicates the general use patterns of the area and the potential for contact with the material abbreviated as follows:

- L - accessed less than once per month
- M - routine access by Operations and Maintenance Workers, between once per week to once per month
- H - generally accessible, routine contact by any building occupant, access more than once per week

MATERIAL SAMPLE ANALYSIS KEY

CHAIN OF CUSTODY

Sample Numbers: The sample number refers to the number assigned to the set of samples taken from a single homogeneous material. The letter following the number identifies samples individually within a homogeneous sample series (e.g. "A", "B", and "C" for three samples of one floor tile type).

Description: This column is a written description of the material that was sampled.

Notes – The floor, location, and room refers to where the material was located.

Sample Type : Bulk samples are identified by the letter B.

LAB RESULTS: ASBESTOS PLM REPORT: METHOD 600/R-93-116

Location: Represents the sample number and material description from the Chain of Custody.

Percent and Type Asbestos: This is a detailed breakdown of approximate percentage and mineral species of asbestos found during bulk sample analysis.

Percent and Type Non-Asbestos and Percent Non-Fibrous Constituents: Listing of approximate percentage of the remaining.

ASBESTOS BUILDING SURVEY METHODS

The asbestos survey was conducted in accordance with 29CFR1926.1101, 40 CFR Part 61 and state or local requirements. All surveys are conducted by accredited inspectors.

The asbestos survey included identifying friable and non-friable, asbestos-containing building materials (ACBM), on an area-by-area basis, assessment of friability, current condition and potential for future disturbance of the material, an estimate of the amount of ACBM, and an overall condition rating of the material.

AET identified and categorized suspect materials into three groups: 1) thermal system insulation (T) including pipe, HVAC insulation and fitting insulation; 2) sprayed-on or troweled-on surfacing material (S) including acoustical plaster, soundproofing, fireproofing, and decorative materials; and 3) miscellaneous materials (M) including ceiling tile and floor tile.

The inspector performed a visual estimation of the quantity of asbestos-containing materials and the current condition of these materials in all accessible areas. Factors included in the condition assessment are adhesion of the material to the underlying substrate, deterioration of the outer covering, delamination, contact damage, and materials disintegration.

Friability and potential for future damage of asbestos materials was also assessed by the inspector. Damage potential was evaluated by observation of conditions most likely to result in disturbance of asbestos-containing materials. These conditions are:

Air Erosion -- A direct air stream moving across the material erodes the material, thereby creating airborne fibers. The potential for air erosion is determined by the relationship between the friability of the material and its location in respect to air plenums and air streams.

Vibrational Damage - determined by the presence of noise, physical movement and mechanical vibrations, which can create ambient fiber release.

Accessibility - If the material can be reached, it is accessible and subject to accidental or intentional contact damage.

Bulk samples of suspect materials were collected in a random and unbiased manner. Representative bulk samples of suspect materials were collected to determine the extent of ACBM present throughout the building. Sampling was completed in accordance with 40CFR763 (AHERA).

Sampling procedures utilized by the accredited inspector minimized fiber dispersal and conformed with applicable regulations. Suspect asbestos-containing materials were analyzed by a NVLAP accredited laboratory using the Environmental Protection Agency (EPA) recommended polarized light microscopy (PLM) with dispersion staining analytical technique.

The Environmental Protection Agency (EPA) requires that any sample with an asbestos content estimated to be less than 10 percent by a method other than point counting, such as visual estimation, shall be repeated using the point counting technique with PLM. However, if the laboratory detects asbestos in the samples and estimates the amount by visual estimation to be less than 10 percent, the owner or operator of the building may elect to treat the material as asbestos-containing. A sample in which no asbestos is detected does not require repeat analysis using point counting techniques with PLM. Samples analyzed for this survey with values less than 10 percent have not been point counted and have been assumed to contain asbestos greater than 1 percent.

Appendix B

Material Identification and Inventory

Appendix B - Material Identification Inventory Report

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Exterior	320 BR	Brick & Mortar Brown	M	ND			Non-Friable			
Notes:										
Exterior	321 BR	Caulk Brown	M	ND			Non-Friable			
Notes:										
Exterior	321 R	Caulk Red	M	ND			Non-Friable			
Notes:										
Exterior	401 BRW	Siding Brown Wood	M	NS			Non-Friable		0	NA
Notes:										
Exterior	714 IF	LED Bulbs In Fixtures	RW		2 EA		Non-Friable			
Notes:										
Exterior	742 OG	Air Conditioners On Ground	RW		1 EA		Non-Friable			
Notes:										

Client Name: Bolton & Menk, Inc.
 Project Number: P-0044344
 Project Manager: Bruce A. Boehm Carlson
 Sample Set Name: 1

Building Number: 1
 Building Name: Morris Municipal Airport Terminal
 Building Address 1: 50725 State Highway 28
 Building Address 2:
 City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	AHERA Rating
Exterior	402	Shingles	M	ND			Non-Friable			
Roof	BR	Brown								
Notes:										
Exterior	419	Rubber Membrane	M	ND			Non-Friable			
Roof	B	Black								
Notes:										
Floor 01	105	Acoustical Ceiling Texture	S	ND			Friable		7	7
01	PC	Popcorn								
Notes: Located throughout the building.										
Floor 01	305	Sheetrock & Taping Compound	M	ND			Friable		7	7
01	WC	Walls and Ceilings								
Notes: Located throughout the building.										
Floor 01	308	Base Cove & Mastic	M	ND			Non-Friable			
01	BL	Blue								
Notes: Located in Fl. 01 Rms. 01, 02, 03, 04, 05, and 06.										
Floor 01	309	Mastic - Carpet	M	ND			Non-Friable			
01	BR	Brown								
Notes: Located in Fl. 01 Rms. 01, 03, 04, and 05.										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01 01	316 F	Concrete Floor	M	NS			Non-Friable		0	NA
Notes: Located throughout the building.										
Floor 01 01	322 IFD	Steel In Floor Dustwork	M	NS			Non-Friable		0	NA
Notes: Located throughout the building.										
Floor 01 01	329 WC	Wood Walls and Ceilings	M	NS			Non-Friable		0	NA
Notes: Located throughout the building.										
Floor 01 01	502 W	Sink Undercoating White	M	ND			Non-Friable			
Notes:										
Floor 01 01	714 IF	LED Bulbs In Fixtures	RW		5 EA		Non-Friable			
Notes:										
Floor 01 01	721 OFS	TVs/Monitors On Floor/Stand	RW		2 EA		Non-Friable			
Notes:										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01 01 Notes:	741 OFW	Fire Extinguishers On Floor/Wall	RW		1 EA		Non-Friable			
Floor 01 01 Notes:	747 MIC	Appliances Microwave	RW		1 EA		Non-Friable			
Floor 01 01 Notes:	748 OFS	Electronics On Floor/Stand	RW		1 EA		Non-Friable			
Floor 01 02 Notes: Located throughout the building.	105 PC	Acoustical Ceiling Texture Popcorn	S	ND			Friable		7	7
Floor 01 02 Notes:	702 OWC	Emergency Lighting On Wall/Ceiling	RW		1 EA		Non-Friable			
Floor 01 02 Notes:	703 OWC	Exit Signs On Wall/Ceiling	RW		1 EA		Non-Friable			

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	708	Thermostats	RW		1 EA		Non-Friable			
	OW	On Wall								
02										
Notes:										
Floor 01	714	LED Bulbs	RW		2 EA		Non-Friable			
	IF	In Fixtures								
02										
Notes:										
Floor 01	747	Appliances	RW		1 EA		Non-Friable			
	RFG	Refrigerator								
02										
Notes:										
Floor 01	718	Lighting Ballasts	RW		4 EA		Non-Friable			
	IF	In Fixtures								
03										
Notes:										
Floor 01	719	Fluorescent Bulbs	RW		8 EA		Non-Friable			
	IF	In Fixtures								
03										
Notes:										
Floor 01	105	Acoustical Ceiling	S	ND			Friable		7	7
		Texture								
	PC	Popcorn								
04										
Notes: Located throughout the building.										

Client Name: Bolton & Menk, Inc.
 Project Number: P-0044344
 Project Manager: Bruce A. Boehm Carlson
 Sample Set Name: 1

Building Number: 1
 Building Name: Morris Municipal Airport Terminal
 Building Address 1: 50725 State Highway 28
 Building Address 2:
 City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	305	Sheetrock & Taping Compound	M	ND			Friable		7	7
	WC	Walls and Ceilings								
04										
Notes: Located throughout the building.										
Floor 01	308	Base Cove & Mastic	M	ND			Non-Friable			
	BL	Blue								
04										
Notes: Located in Fl. 01 Rms. 01, 02, 03, 04, 05, and 06.										
Floor 01	315	Ceramic Tile	M	ND			Non-Friable			
	LBL	Light Blue								
04										
Notes: Located in Fl. 01 Rms. 02, 04, 05, 06, 07, and 08.										
Floor 01	703	Exit Signs	RW		1 EA		Non-Friable			
	OWC	On Wall/Ceiling								
04										
Notes:										
Floor 01	714	LED Bulbs	RW		3 EA		Non-Friable			
	IF	In Fixtures								
04										
Notes:										
Floor 01	718	Lighting Ballasts	RW		4 EA		Non-Friable			
	IF	In Fixtures								
04										
Notes:										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01 04 Notes:	719 IF	Fluorescent Bulbs In Fixtures	RW		8 EA		Non-Friable			
Floor 01 04 Notes:	721 OFS	TVs/Monitors On Floor/Stand	RW		2 EA		Non-Friable			
Floor 01 04 Notes:	761 OD	Door Closers On Door	RW		1 EA		Non-Friable			
Floor 01 05 Notes:	309 BR	Mastic - Carpet Brown	M	ND			Non-Friable			
Floor 01 05 Notes:	714 IF	LED Bulbs In Fixtures	RW		4 EA		Non-Friable			
Floor 01 05 Notes:	721 OFD	TVs/Monitors On Floor/Desk	RW		1 EA		Non-Friable			

Client Name: Bolton & Menk, Inc.
 Project Number: P-0044344
 Project Manager: Bruce A. Boehm Carlson
 Sample Set Name: 1

Building Number: 1
 Building Name: Morris Municipal Airport Terminal
 Building Address 1: 50725 State Highway 28
 Building Address 2:
 City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	ASHERA Rating
Floor 01	748 OFD	Electronics On Floor/Desk	RW		2 EA		Non-Friable			
05										
Notes:										
Floor 01	748 OFSF	Electronics On Floor/Shelf	RW		4 EA		Non-Friable			
05										
Notes:										
Floor 01	105 PC	Acoustical Ceiling Texture Popcorn	S	ND			Friable		7	7
06										
Notes: Located throughout the building.										
Floor 01	714 IF	LED Bulbs In Fixtures	RW		4 EA		Non-Friable			
06										
Notes:										
Floor 01	744 OW	Water Fountains On Wall	RW		1 EA		Non-Friable			
06										
Notes:										
Floor 01	761 OD	Door Closers On Door	RW		2 EA		Non-Friable			
06										
Notes:										

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name: Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability	Condition	Damage Potential: Water	Air	Vib	Acc	Cond Rating	ASHERA Rating
Floor 01	105	Acoustical Ceiling Texture	S	ND			Friable						7	7
	PC	Popcorn												
07														
Notes: Located throughout the building.														
Floor 01	315	Ceramic Tile	M	ND			Non-Friable							
	W	White												
07														
Notes: Located in Fl. 01 Rms. 07 and 08.														
Floor 01	321	Caulk	M	ND			Non-Friable							
	W	White												
07														
Notes: Located in Fl. 01 Rms. 07 and 08.														
Floor 01	714	LED Bulbs	RW		6 EA		Non-Friable							
	IF	In Fixtures												
07														
Notes:														
Floor 01	754	Exhaust Fan	RW		1 EA		Non-Friable							
	IC	In Ceiling												
07														
Notes:														
Floor 01	714	LED Bulbs	RW		6 EA		Non-Friable							
	IF	In Fixtures												
08														
Notes:														

Client Name: Bolton & Menk, Inc.
Project Number: P-0044344
Project Manager: Bruce A. Boehm Carlson
Sample Set Name: 1

Building Number: 1
Building Name Morris Municipal Airport Terminal
Building Address 1: 50725 State Highway 28
Building Address 2:
City, State Zip: Morris, MN 56267

Area Location Room Number	Material ID Subcat ID	Material ID Description Subcategory Description	Material Code	Asbestos Content	Quantity	Lead Paint	Physical Assessment: Friability Condition	Damage Potential: Water Air Vib Acc	Cond Rating	AHERA Rating
Floor 01 08	754 IC	Exhaust Fan In Ceiling	RW		1 EA		Non-Friable			
Notes:										

Appendix C

Asbestos Laboratory Analytical Results



Built Environment Testing

Report for:

Bruce Boehm Carlson
American Engineering Testing Inc
550 Cleveland Avenue N.
Saint Paul, MN 55114

Regarding: Eurofins Built Environment Testing East, LLC
Project: P-0044344 - Bolton & Menk Inc Morris Municipal
EML ID: 4342180

Approved by:

Dates of Analysis:
Asbestos PLM (Layer %): 12-12-2025

A handwritten signature in black ink, appearing to read "Frank Ehrenfeld", written over a light blue background.

Approved Signatory
Frank Ehrenfeld

REVIEWED

By Bruce A. Boehm Carlson at 6:28 pm, Dec 15, 2025

Service SOPs: Asbestos PLM (Layer %) (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EB-AS-S-1267)
NVLAP Lab Code 101165-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins Built Environment Testing East, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: American Engineering Testing Inc
C/O: Bruce Boehm Carlson
Re: P-0044344 - Bolton & Menk Inc Morris
Municipal

Date of Receipt: 12-12-2025
Date of Report: 12-15-2025

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
105-PC-A. Floor 01 01; Acoustical Ceiling Texture Popcorn 21746809-1	Layer 1 White Popcorn Texture Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
105-PC-B. Floor 01 02; Acoustical Ceiling Texture Popcorn 21746810-1	Layer 1 White Popcorn Texture Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
105-PC-C. Floor 01 04; Acoustical Ceiling Texture Popcorn 21746811-1	Layer 1 White Popcorn Texture Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
105-PC-D. Floor 01 06; Acoustical Ceiling Texture Popcorn 21746812-1	Layer 1 White Popcorn Texture Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
105-PC-E. Floor 01 07; Acoustical Ceiling Texture Popcorn 21746813-1	Layer 1 White Popcorn Texture Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
305-WC-A. Floor 01 01; Sheetrock & Taping Compound Walls and Ceilings 21746814-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Cellulose	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Tan Tape Homogeneity:Good	Not Detected	100% Cellulose	
305-WC-B. Floor 01 04; Sheetrock & Taping Compound Walls and Ceilings 21746815-1	Layer 1 White Drywall with Brown Paper Homogeneity:Good	Not Detected	85% Non-Fibrous Material 15% Cellulose	
	Layer 2 White Joint Compound Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 3 Blue Wrap Homogeneity:Good	Not Detected	70% Cellulose 30% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: American Engineering Testing Inc
C/O: Bruce Boehm Carlson
Re: P-0044344 - Bolton & Menk Inc Morris
Municipal

Date of Receipt: 12-12-2025
Date of Report: 12-15-2025

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
308-BL-A. Floor 01 01; Base Cove & Mastic Blue 21746816-1	Layer 1 Gray Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
308-BL-B. Floor 01 04; Base Cove & Mastic Blue 21746817-1	Layer 1 Gray Cove Base Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
309-BR-A. Floor 01 01; Mastic- Carpet Brown 21746818-1	Layer 1 Brown Carpet Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
309-BR-B. Floor 01 05; Mastic- Carpet Brown 21746819-1	Layer 1 Brown Carpet Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
315-LBL-A. Floor 01 04; Ceramic Tile Light Blue 21746820-1	Layer 1 Lt. Blue Ceramic Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Clear Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
315-LBL-B. Floor 01 04; Ceramic Tile Light Blue 21746821-1	Layer 1 Lt. Blue Ceramic Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Clear Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
315-W-A. Floor 01 07; Ceramic Tile White 21746822-1	Layer 1 White Ceramic Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: American Engineering Testing Inc
C/O: Bruce Boehm Carlson
Re: P-0044344 - Bolton & Menk Inc Morris
Municipal

Date of Receipt: 12-12-2025
Date of Report: 12-15-2025

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
315-W-B. Floor 01 07; Ceramic Tile White 21746823-1(cont.)	Layer 1 White Ceramic Tile Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Yellow Mastic Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
320-BR-A. Exterior; Brick & Mortar Brown 21746824-1	Layer 1 Brown Brick Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Gray Mortar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
320-BR-B. Exterior; Brick & Mortar Brown 21746825-1	Layer 1 Brown Brick Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Gray Mortar Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
321-BR-A. Exterior; Caulk Brown 21746826-1	Layer 1 Brown Caulk Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
321-BR-B. Exterior; Caulk Brown 21746827-1	Layer 1 Brown Caulk Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
321-R-A. Exterior; Caulk Red 21746828-1	Layer 1 Red Caulk Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
321-R-B. Exterior; Caulk Red 21746829-1	Layer 1 Red Caulk Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
321-W-A. Floor 01 07; Caulk White 21746830-1	Layer 1 White Caulk Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
321-W-B. Floor 01 07; Caulk White 21746831-1	Layer 1 White Caulk Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
402-BR-A. Exterior Roof; Shingle Brown 21746832-1	Layer 1 Brown/Black Roofing Shingle Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Glass Fibers	
402-BR-B. Exterior Roof; Shingle Brown 21746833-1	Layer 1 Brown/Black Roofing Shingle Homogeneity:Good	Not Detected	90% Non-Fibrous Material 10% Glass Fibers	

Comments:

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified. Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers of that type were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: American Engineering Testing Inc
C/O: Bruce Boehm Carlson
Re: P-0044344 - Bolton & Menk Inc Morris
Municipal

Date of Receipt: 12-12-2025
Date of Report: 12-15-2025

Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116

Sample ID # Lab-ID version	Sample Description	Asbestos Constituents	Non-Asbestos Constituents	Comment
419-B-A. Exterior Roof; Rubber Membrane Black 21746834-1	Layer 1 Black Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Brown Fiberboard Homogeneity:Good	Not Detected	80% Cellulose 20% Non-Fibrous Material	
419-B-B. Exterior Roof; Rubber Membrane Black 21746835-1	Layer 1 Black Roofing Membrane Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
	Layer 2 Brown Fiberboard Homogeneity:Good	Not Detected	80% Cellulose 20% Non-Fibrous Material	
502-W-A. Floor 01 01; Sink Undercoating White 21746836-1	Layer 1 White Sink Undercoating Homogeneity:Good	Not Detected	100% Non-Fibrous Material	
502-W-B. Floor 01 01; Sink Undercoating White 21746837-1	Layer 1 White Sink Undercoating Homogeneity:Good	Not Detected	100% Non-Fibrous Material	

Comments:

Analyst(s): Eric Bazurto

The total percentage of sample components shown may be greater than 100% when some components are detected at <1%.

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins Built Environment Testing East, LLC

9000 Commerce Parkway, Suite B, Mount Laurel, NJ 08054
(856) 231-9449 www.eurofinsus.com/Built

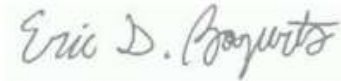
Client: American Engineering Testing Inc
C/O: Bruce Boehm Carlson
Re: P-0044344 - Bolton & Menk Inc Morris
Municipal

Date of Receipt: 12-12-2025
Date of Report: 12-15-2025

**Bulk Asbestos Fiber Analysis by Polarized Light Microscopy (PLM)
Appx E Sub E 40 CFR 763 / EPA 600/R-93/116**

PROJECT ANALYST AND SIGNATORY REPORT

Project Analyst



Analyst: Eric Bazurto

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

29

004342180

Dataset C:\Users\bboehmcarlson\OneDrive - American Engineering Testing, Inc\Desktop\P-004434

Chain of Custody, Sample Set 1

Project Number P-0044344 Building Number 1 Address 1 50725 State Highway 28
Client Name Bolton & Menk, Inc. Building Name Morris Municipal Airp Address 2
Project Manager Bruce A. Boehm Carlson City, State, Zip Morris MN 56267

State Samples From MN Total Number of Samples 29 Temperature Upon Receipt (C)
Sampled By Bruce A. Boehm Carlson 12/11/2025 Survey Date(s)
Received By
Relinquished By 1 Bruce A. Boehm Carlson 12/11/2025 Survey Date
Relinquished By 2 12/11/2025
Relinquished By 3

Turnaround Time (Due Date) Standard 12/16/2025
Received in Lab By KM FX 12/12 950
Analyzed By

Notes 29 bulk samples for asbestos PLM analysis.
PO No.: 18334-556



AMERICAN
ENGINEERING
TESTING, INC.

American Engineering
Testing, Inc.
550 Cleveland Avenue North
St. Paul, MN 55114

RECEIVED

DEC 12 2025

SALE

BY

Total List of Samples, Project Number P-0044344, Sample Set 1

Sample Number	Location Description		Material Description	Material Sub Description
105-PC-A	Floor 01	01	Acoustical Ceiling Texture	Popcorn
105-PC-B	Floor 01	02	Acoustical Ceiling Texture	Popcorn
105-PC-C	Floor 01	04	Acoustical Ceiling Texture	Popcorn
105-PC-D	Floor 01	06	Acoustical Ceiling Texture	Popcorn
105-PC-E	Floor 01	07	Acoustical Ceiling Texture	Popcorn
305-WC-A	Floor 01	01	Sheetrock & Taping Compound	Walls and Ceilings
305-WC-B	Floor 01	04	Sheetrock & Taping Compound	Walls and Ceilings
308-BL-A	Floor 01	01	Base Cove & Mastic	Blue
308-BL-B	Floor 01	04	Base Cove & Mastic	Blue
309-BR-A	Floor 01	01	Mastic - Carpet	Brown
309-BR-B	Floor 01	05	Mastic - Carpet	Brown
315-LBL-A	Floor 01	04	Ceramic Tile	Light Blue
315-LBL-B	Floor 01	04	Ceramic Tile	Light Blue
315-W-A	Floor 01	07	Ceramic Tile	White
315-W-B	Floor 01	07	Ceramic Tile	White
320-BR-A	Exterior		Brick & Mortar	Brown
320-BR-B	Exterior		Brick & Mortar	Brown
321-BR-A	Exterior		Caulk	Brown
321-BR-B	Exterior		Caulk	Brown
321-R-A	Exterior		Caulk	Red
321-R-B	Exterior		Caulk	Red
321-W-A	Floor 01	07	Caulk	White
321-W-B	Floor 01	07	Caulk	White
402-BR-A	Exterior	Roof	Shingles	Brown
402-BR-B	Exterior	Roof	Shingles	Brown
419-B-A	Exterior	Roof	Rubber Membrane	Black

Thursday, December 11, 2025

Page 1 of 2

004342180



AMERICAN
ENGINEERING
TESTING, INC.

km

12/12

American Engineering
Testing, Inc.
550 Cleveland Avenue North
St. Paul, MN 55114

Sample_Number	Location Description	Material Description	Material Sub Description
419-B-B	Exterior Roof	Rubber Membrane	Black
502-W-A	Floor 01 01	Sink Undercoating	White
502-W-B	Floor 01 01	Sink Undercoating	White



004342180

KM
12/12

Thursday, December 11, 2025

Page 2 of 2



AMERICAN
ENGINEERING
TESTING, INC.

American Engineering
Testing, Inc.
550 Cleveland Avenue North
St. Paul, MN 55114

Appendix D

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Appendix D

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Appendix E

MPCA Pre-Demolition Environmental
Checklist and Guide



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

Appendix E

Pre-Renovation/Demolition Environmental Checklist

Asbestos Program

Doc Type: Compliance/Enforcement Correspondence

Minn. R. 7035.0805 requires that you remove the items below before starting a renovation or demolition project, and then manage and recycle or dispose of them correctly. This checklist is provided to help you manage the project and does not need to be submitted to the Minnesota Pollution Control Agency unless requested.

Project Information

Structure owner

Name: _____
Address: _____
City, State, Zip: _____
Contact name: _____
Phone number: _____

Structure information

Building name: _____
Address/Location: _____
City, State, Zip: _____
Age of bldg (yrs): _____ Size of bldg (sq ft): _____
Present use of bldg: _____
Prior use of bldg: _____

Demolition contractor

Name: _____
Address: _____
City, State, Zip: _____
Contact name: _____
Phone number: _____

Dates of renovation, demolition, or fire training burn:

Start date: _____ End date: _____
(mm/dd/yy) (mm/dd/yy)

Mercury	Qty
Batteries	
Smoke detectors:	
Emergency lighting systems:	
Elevator control panels:	
Exit signs:	
Security systems and alarms:	
Lighting	
Fluorescent lights:	
High intensity discharge	
Metal halide:	
High pressure sodium:	
Mercury vapor:	
Neon:	
Switches for lighting using mercury relays (look for any control associated with exterior or automated lighting systems):	
"Silent" wall switches:	
Heating, ventilating, and air conditioning systems	
Thermostats:	
Aquastats:	
Pressurestats:	

	Qty
Firestats:	
Manometers:	
Thermometers:	
Boilers, furnaces, heaters, and tanks	
Mercury flame sensors by pilot lights:	
Manometers, thermometers, gauges:	
Pressure-trol:	
Float or level controls:	
Space heater controls:	
Electrical systems	
Load meters & supply relays:	
Phase splitters:	
Micro relays:	
Mercury displacement relays:	
Asbestos	
Boiler rooms	
Boilers, furnaces, fireplaces, and their components:	
Cement sheets near heating equipment:	

	Qty
Boiler insulation:	
HVAC duct insulation:	
Ductwork flexible fabric connections:	
Fireproofing materials:	
Fire doors:	
Flooring:	
Vinyl floor tile:	
Vinyl sheet flooring:	
Asphalt tile:	
Linoleum paper backing:	
Mastic/glue (floor tile, carpet, etc.):	
Electrical	
Electrical panels:	
Electrical wiring insulation:	
Heating and electrical ducts/conduit:	
Pipe and other insulation	
Aircell (corrugated cardboard):	
Millboard:	
Preform:	
Joint compound:	

www.pca.state.mn.us • 651-296-6300 • 800-657-3864 • TTY 651-282-5332 or 800-657-3864

Asbestos (continued)	Qty		Qty		Qty
Spray applied insulation:		ChloroFluoroCarbons		Lead-acid batteries (lighting, exit	
Blown-in insulation:		Fire extinguishers (both portable		signs, security systems):	
Block:		and installed halon suppression		Lead flashing molds and	
Surfacing materials		systems):		roof vents:	
Acoustical plaster:		Air conditioners (rooftop, room,		Lead pipes and solder:	
Decorative plaster:		and central):		Lead-lined X-ray rooms:	
Textured paints & coatings:		Walk in coolers (refrigeration			
Spray-applied materials		or cold storage areas):		Other	
(acoustical, decorative, or insulative):		Water fountains and		Solid waste (all non-building	
Roofing		dehumidifiers:		components such as unattached	
Roofing shingles:		Refrigerators/freezers/chillers:		carpet, files, books, trash, desks,	
Roofing felt:		Heat pumps:		chairs, etc.) must be removed	
Base flashing:		Vending machines/food		prior to demolition:	
Cement materials (Transite)		display cases:		Hazardous waste (including	
Cement pipes (flues & vents):				household) must be properly	
Cement wallboard:		Poly-Chlorinated		handled and disposed of prior	
Cement siding:		BiPhenyls (PCBs)		to demolition:	
Pegboard:		Transformers:		Oil (used oil, hydraulic oils in door	
Ceiling materials		Transistors:		closers, elevator shafts, etc.)	
Ceiling tiles:		Capacitors:		must be collected and properly	
Ceiling tile adhesives (pucks):		Heat transfer equipment:		disposed of prior to demolition:	
Lay-in ceiling panels:		Light ballasts:		Tanks (no evidence of former	
Acoustical tiles:				heating tanks or storage tanks	
Miscellaneous		Lead		exist):	
Taping, joint, and spackling		Lead-based paint (woodwork,		Appliances must be recycled	
compound:		metal equipment, interior/		by an appliance recycler:	
Caulking/putties:		exterior uses):		Electronics:	
Fire curtains and blankets:					
Laboratory hoods, table					
tops, gloves, etc.:					
Gaskets:					

If you have questions or comments about this checklist, identify any additional items not found in this list, or would like to discuss an individual project, contact the Minnesota Pollution Control Agency at 651-296-6300 or 1-800-657-3864.

Affiliation with project: _____ Title: _____

Printed name: _____ Date: _____

Important Note:

This guidance document is not intended as a substitute for reading Minnesota Rules and Statutes and making your own independent determination of their applicability to your renovation/demolition project. Examples in this guidance document do not represent an exhaustive listing of type of materials that may be required to be removed from a building prior to renovation/demolition.

Appendix F

Photographic Log

Appendix F - Asbestos and Regulated Waste Inspection Report Photographs
Morris Municipal Airport, 50725 State Highway 28, Morris, MN 56267

AET Project No.: P-0044344

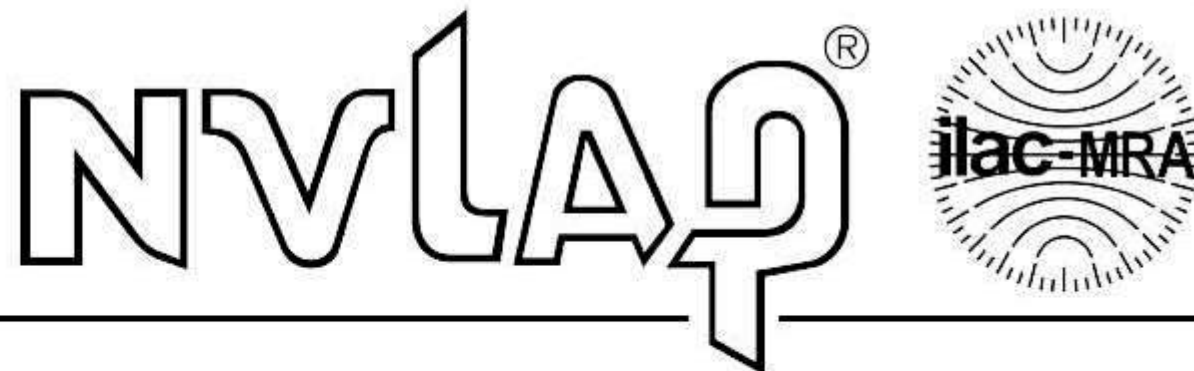


Photo 1 – View of the building looking west

Appendix G

Laboratory Credentials

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101165-0

Eurofins Built Environment Testing East- Mount Laurel, NJ
Mt. Laurel, NJ

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué on ISO/IEC 17025).*

2025-07-01 through 2026-06-30
Effective Dates



For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins Built Environment Testing East- Mount Laurel, NJ

9000 Commerce Parkway

Suite B

Mt. Laurel, NJ 08054

Mandy Trieu

Phone: 856-560-0434

Email: mandy.trieu@et.eurofinsus.com

<http://www.eurofins.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 101165-0

Bulk Asbestos Analysis

Code

Description

18/A01

EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples

18/A03

EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

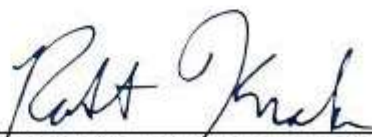
Airborne Asbestos Analysis

Code

Description

18/A02

U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.



For the National Voluntary Laboratory Accreditation Program

Appendix H

AET Certifications



Asbestos Inspector Certification

Minnesota Department of Health

Number ASB-672
 Bruce Boehm Carlson
 5720 Dupont Avenue South
 Minneapolis, MN 55419

Issue Date:
 February 3, 2025

Expiration Date:
 January 3, 2026

Certificate No: 5LM01032501AIR

Expiration Date: January 3, 2026

*This is to certify that***Bruce A. Boehm Carlson***has attended and successfully completed an***ASBESTOS INSPECTOR****REFRESHER TRAINING COURSE***permitted by**the State of Minnesota under Minnesota Rules 4620.3702 to 4620.3722**and meets the requirements of**Section 206 of Title II of the Toxic Substances Control Act (TSCA)**conducted by***Lake States Environmental, Ltd.***in***White Bear Lake, MN on January 3, 2025****Examination Date: January 3, 2025**

Lake States Environmental, Ltd.
 P. O. Box 645, Rice Lake, WI 54868
www.lakestates.com
 (800) 254-9811

Training Instructor

STATE WAGE RATES

Airport Terminal Building Construction

Morris Municipal Airport (MOX)

25X.141173

FAA AIP 3-27-0069-19-2026

FAA AIG 3-27-0069-20-2026

City of Morris

Morris, MN

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: 75

County Name: STEVENS

Effective: 2025-12-22

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. *Note: Overtime pay after eight (8) hours on the project must be paid even if the worker does not exceed forty (40) hours in the work week.*

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.

County: STEVENS (75)

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)					
101*	LABORER, COMMON (GENERAL LABOR WORK)	2025-12-22	37.67	25.69	63.36
		2026-05-01	40.52	27.48	68.00
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2025-12-22	37.67	25.69	63.36
		2026-05-01	40.52	27.48	68.00
103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2025-12-22	17.50	0.00	17.50
104	FLAG PERSON	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PRE VWAGE@STATE.MN.US			
105*	WATCH PERSON	2025-12-22	31.00	1.35	32.35

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
106	BLASTER	FOR RATE CALL 651-284-5091 OR EMAIL <u>DL.PREVIEWAGE@STATE.MN.US</u>			
107*	PIPELAYER (WATER, SEWER AND GAS)	2025-12-22	29.75	19.94	49.69
108	TUNNEL MINER	FOR RATE CALL 651-284-5091 OR EMAIL <u>DL.PREVIEWAGE@STATE.MN.US</u>			
109*	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2025-12-22	27.75	19.94	47.69
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.	+\$950,000 2025-12-22	26.51	17.69	44.20
		-\$950,000 2025-12-22	24.76	17.69	42.45
111	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	FOR RATE CALL 651-284-5091 OR EMAIL <u>DL.PREVIEWAGE@STATE.MN.US</u>			
SPECIAL EQUIPMENT (201 - 204)					
201*	ARTICULATED HAULER	2025-12-22	17.50	0.00	17.50
202*	BOOM TRUCK	FOR RATE CALL 651-284-5091 OR EMAIL <u>DL.PREVIEWAGE@STATE.MN.US</u>			
203*	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT	2025-12-22	11.41	0.00	11.41

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
	(EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS				
204	OFF-ROAD TRUCK	FOR RATE CALL 651-284-5091 OR EMAIL DLLPREVWAGE@STATE.MN.US			
205	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2025-12-22	18.00	0.00	18.00
HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR					
GROUP 2 *		2025-12-22	40.00	0.00	40.00
306	GRADER OR MOTOR PATROL				
308	TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)				
GROUP 3 *		2025-12-22	37.00	0.00	37.00
309	ASPHALT BITUMINOUS STABILIZER PLANT				
310	CABLEWAY				
312	DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)				
314	DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER				
316	LOCOMOTIVE CRANE OPERATOR				
320	TANDEM SCRAPER				
322	TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)				
GROUP 4 *		2025-12-22	38.00	0.00	38.00
323	AIR TRACK ROCK DRILL				
324	AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)				
325	BACKFILLER OPERATOR				
327	BITUMINOUS ROLLERS, RUBBER TIED OR STEEL DRUMMED (EIGHT TONS AND OVER)				
328	BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)				
329	BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS				
330	CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS				
331	CHIP HARVESTER AND TREE CUTTER				
332	CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE				

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
334	CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)				
335	CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT				
336	CURB MACHINE				
337	DIRECTIONAL BORING MACHINE				
338	DOPE MACHINE (PIPELINE)				
340	DUAL TRACTOR				
341	ELEVATING GRADER				
345	GPS REMOTE OPERATING OF EQUIPMENT				
347	HYDRAULIC TREE PLANTER				
348	LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)				
349	LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)				
350	MILLING, GRINDING, PLANNING, FINE GRADE, OR TRIMMER MACHINE				
352	PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE				
354	PIPELINE WRAPPING, CLEANING OR BENDING MACHINE				
356	POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES				
357	PUGMILL				
359	RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)				
360	SCRAPER				
361	SELF-PROPELLED SOIL STABILIZER				
362	SLIP FORM (POWER DRIVEN) (PAVING)				
363	TIE TAMPER AND BALLAST MACHINE				
365	TRACTOR, WHEEL TYPE, OVER 50 H.P. WITH PTO UNRELATED TO LANDSCAPING (HIGHWAY AND HEAVY ONLY)				
367	TUB GRINDER, MORBARK, OR SIMILAR TYPE				
GROUP 5 *		2025-12-22	33.00	0.00	33.00
370	BITUMINOUS ROLLER (UNDER EIGHT TONS)				
371	CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)				
372	FORM TRENCH DIGGER (POWER)				
375	HYDRAULIC LOG SPLITTER				
376	LOADER (BARBER GREENE OR SIMILAR TYPE)				
377	POST HOLE DRIVING MACHINE/POST HOLE AUGER				
379	POWER ACTUATED JACK				
381	SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)				
382	SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER				
383	SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER				
384	STUMP CHIPPER AND TREE CHIPPER				
385	TREE FARMER (MACHINE)				

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
GROUP 6 *		2025-12-22	14.00	0.00	14.00
387	CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER				
389	DREDGE DECK HAND				
391	GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)				
393	LEVER PERSON				
395	POWER SWEEPER				
396	SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS				
397	TRACTOR, WHEEL TYPE, OVER 50 H.P., UNRELATED TO LANDSCAPING				
COMMERCIAL POWER EQUIPMENT OPERATOR					
GROUP 1 *		2025-12-22	43.35	22.85	66.20
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 *		2025-12-22	49.80	29.36	79.16
		2026-05-04	51.52	30.96	82.48
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 *		2025-12-22	35.50	10.53	46.03
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 UP TO 200 FEET				
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 *		2025-12-22	40.58	21.70	62.28
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)				

LABOR CODE AND CLASS	EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
518				
519				
520				
GROUP 5 *	2025-12-22	45.21	29.36	74.57
	2026-05-04	46.41	30.96	77.37
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GROUP 6 *	2025-12-22	37.75	21.70	59.45
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540				
GROUP 7 *	2025-12-22	42.29	29.36	71.65
	2026-05-04	43.38	30.96	74.34
541				
542				
543				
544				
545				

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
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 DLLPREVWAGE@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)				
TRUCK DRIVERS					
GROUP 1 *		2025-12-22	28.00	0.84	28.84
601	MECHANIC . WELDER				
602	TRACTOR TRAILER DRIVER				
603	TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER OPERATED WINCHES)				
GROUP 2		2025-12-22	26.00	0.00	26.00
604	FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK				
GROUP 3		2025-12-22	23.11	15.25	38.36
605	BITUMINOUS DISTRIBUTOR DRIVER				
606	BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)				
607	THREE AXLE UNITS				
GROUP 4		2025-12-22	16.00	0.00	16.00
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.				
SPECIAL CRAFTS					
701	HEATING AND FROST INSULATORS	2025-12-22	24.00	0.60	24.60

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
702*	BOILERMAKERS	2025-12-22	48.35	31.93	80.28
703	BRICKLAYERS	2025-12-22	44.37	29.94	74.31
		2026-05-04	47.87	29.94	77.81
704	CARPENTERS	2025-12-22	36.14	27.98	64.12
		2026-05-04	39.14	27.98	67.12
705*	CARPET LAYERS (LINOLEUM)	2025-12-22	27.15	17.38	44.53
706*	CEMENT MASONS	2025-12-22	49.31	27.22	76.53
		2026-05-01	52.20	27.22	79.42
707	ELECTRICIANS	2025-12-22	50.00	30.86	80.86
		2026-07-01	54.86	30.86	85.72
708*	ELEVATOR CONSTRUCTORS	2025-12-22	62.52	45.36	107.88
		2026-01-01	65.21	46.21	111.42
709	GLAZIERS	2025-12-22	50.98	28.25	79.23
		2026-06-01	54.03	28.25	82.28
710*	LATHERS	2025-12-22	23.50	0.92	24.42
712*	IRONWORKERS	2025-12-22	46.35	37.86	84.21
		2026-05-03	49.50	37.86	87.36
714*	MILLWRIGHT	2025-12-22	42.95	37.81	80.76
		2026-05-01	46.15	37.81	83.96
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2025-12-22	33.13	26.14	59.27
		2026-05-01	35.73	26.14	61.87
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2025-12-22	27.46	16.11	43.57

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
717	PIPEFITTERS . STEAMFITTERS	2025-12-22	51.00	37.00	88.00
		2026-06-01	55.93	37.00	92.93
718*	PLASTERERS	2025-12-22	45.98	24.45	70.43
719	PLUMBERS	2025-12-22	56.91	32.21	89.12
720*	ROOFER	2025-12-22	44.93	24.21	69.14
		2026-04-06	46.93	24.21	71.14
		2026-10-05	48.68	24.21	72.89
721	SHEET METAL WORKERS	2025-12-22	50.86	30.51	81.37
		2026-05-01	54.96	30.51	85.47
722*	SPRINKLER FITTERS	2025-12-22	45.93	27.26	73.19
		2026-04-01	48.71	28.56	77.27
723*	TERRAZZO WORKERS	2025-12-22	37.58	16.83	54.41
724*	TILE SETTERS	2025-12-22	30.66	10.53	41.19
725	TILE FINISHERS	2025-12-22	20.50	1.50	22.00
726	DRYWALL TAPER	2025-12-22	34.42	25.62	60.04
		2026-06-01	37.47	25.62	63.09
727	WIRING SYSTEM TECHNICIAN	2025-12-22	51.07	24.02	75.09
		2026-07-02	54.44	24.02	78.46
728*	WIRING SYSTEMS INSTALLER	2025-12-22	35.78	19.15	54.93
		2026-07-02	38.15	19.15	57.30
729*	ASBESTOS ABATEMENT WORKER	2025-12-22	41.23	25.99	67.22
730*	SIGN ERECTOR	2025-12-22	37.19	19.88	57.07

TRUCK RENTAL RATES

Airport Terminal Building Construction

Morris Municipal Airport (MOX)

25X.141173

FAA AIP 3-27-0069-19-2026

FAA AIG 3-27-0069-20-2026

City of Morris

Morris, MN

Dec. 22, 2025

Notice of truck rental rate certification and effective date

The Department of Labor and Industry (DLI) commissioner has certified the minimum truck rental rates for state-funded highway projects effective December 22, 2025. This certification follows the publication of the Notice of Truck Rental Rate Determination in the State Register on Dec. 1, 2025, and the informal conference held pursuant to Minnesota Rules, part 5200.1105 on Dec. 12, 2025.

According to Minnesota Rules, part 5200.1105, the purpose of the informal conference was for DLI to obtain further input regarding the determined rates prior to the certification. No written input regarding the determination was received by DLI prior to the informal conference.

The truck rental rate is determined for each equipment type by adding the average hourly cost of operating the vehicle to the certified prevailing-wage rate for the driver. The average hourly operating costs are determined by voluntary survey of truck owner operators, trucking contractors and trucking firms. Cost data used in DLI's analysis must be representative of five trucking firms of various size and five independent truck owner operators for each type of truck.

The determination of the minimum truck rental rates by region are as follows.

Three-axle units

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$64.83	\$37.35	\$102.18
	Increase May 01, 2026	\$67.42	\$37.35	\$104.77
Region 2	Certification date	\$57.49	\$37.35	\$94.84
	Increase May 01, 2026	\$59.79	\$37.35	\$97.14
Region 3	Certification date	\$46.26	\$37.35	\$83.61

Region	Effective date	607 driver rate	Operating cost	Truck rental rate
Region 4	Certification date	\$60.37	\$37.35	\$97.72
Region 5	Certification date	\$48.01	\$37.35	\$85.36
Region 6	Certification date	\$57.25	\$37.35	\$94.60
Region 7	Certification date	\$47.10	\$37.35	\$84.45
Region 8	Certification date	\$43.50	\$37.35	\$80.85
Region 9	Certification date	\$65.30	\$37.35	\$102.65
	Increase May 01, 2026	\$67.91	\$37.35	\$105.26
Region 10	Certification date	\$59.51	\$37.35	\$96.86

Four or more axle units

Region	Effective date	604 driver rate	Operating cost	Truck rental rate
Region 1	Certification date	\$64.95	\$73.41	\$138.36
	Increase May 01, 2026	\$67.55	\$73.41	\$140.96
Region 2	Certification date	\$54.72	\$73.41	\$128.13
Region 3	Certification date	\$41.98	\$73.41	\$115.39
Region 4	Certification date	\$53.73	\$73.41	\$127.14
Region 5	Certification date	\$54.76	\$73.41	\$128.17

Region	Effective date	604 driver rate	Operating cost	Truck rental rate
Region 6	Certification date	\$62.86	\$73.41	\$136.27
	Increase May 01, 2026	\$65.37	\$73.41	\$138.78
Region 7	Certification date	\$57.65	\$73.41	\$131.06
	Increase May 01, 2026	\$59.96	\$73.41	\$133.37
Region 8	Certification date	\$46.00	\$73.41	\$119.41
Region 9	Certification date	\$65.41	\$73.41	\$138.82
	Increase May 01, 2026	\$68.03	\$73.41	\$141.44
Region 10	Certification date	\$56.06	\$73.41	\$129.47

Tractor

Region	Effective date	602 driver rate	Operating cost	Tractor-only truck rental rate	Plus trailer operating cost	Tractor trailer rental rate
Region 1	Certification date	\$65.58	\$54.96	\$120.54	\$11.46	\$132.00
	Increase May 01, 2026	\$68.20	\$54.96	\$123.16	\$11.46	\$134.62
Region 2	Certification date	\$58.25	\$54.96	\$113.21	\$11.46	\$124.67
	Increase May 01, 2026	\$60.58	\$54.96	\$115.54	\$11.46	\$127.00
Region 3	Certification date	\$48.35	\$54.96	\$103.31	\$11.46	\$114.77
Region 4	Certification date	\$50.27	\$54.96	\$105.23	\$11.46	\$116.69

Region	Effective date	602 driver rate	Operating cost	Tractor-only truck rental rate	Plus trailer operating cost	Tractor trailer rental rate
Region 5	Certification date	\$28.84	\$54.96	\$83.80	\$11.46	\$95.26
Region 6	Certification date	\$63.50	\$54.96	\$118.46	\$11.46	\$129.92
	Increase May 01, 2026	\$66.04	\$54.96	\$121.00	\$11.46	\$132.46
Region 7	Certification date	\$58.25	\$54.96	\$113.21	\$11.46	\$124.67
	Increase May 01, 2026	\$60.58	\$54.96	\$115.54	\$11.46	\$127.00
Region 8	Certification date	\$47.50	\$54.96	\$102.46	\$11.46	\$113.92
Region 9	Certification date	\$66.05	\$54.96	\$121.01	\$11.46	\$132.47
	Increase May 01, 2026	\$68.69	\$54.96	\$123.65	\$11.46	\$135.11
Region 10	Certification date	\$58.25	\$54.96	\$113.21	\$11.46	\$124.67
	Increase May 01, 2026	\$60.58	\$54.96	\$115.54	\$11.46	\$127.00

The current operating costs and truck rental rates may be reviewed by accessing DLI's website at <https://dli.mn.gov/business/employment-practices/prevaling-wage-minimum-truck-rental-rates>. Questions about the truck rental rates or the informal conference notice below can be answered by calling 651-284-5192.

The minimum truck rental rate for these four types of trucks in the State's 10 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 the day the notice of certification is published in the *State Register*.

Sincerely,

Nicole Blissenbach

DLI commissioner