

# PROJECT MANUAL

**PROJECT NAME:**

## Mount Pleasant Correctional Facility Diesel Tank Replacement

**PROJECT ADDRESS:**

1200 E Washington Street  
Mt. Pleasant, Iowa 52641

**PROJECT DATE:** May 11<sup>th</sup>, 2026

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**OWNER:**

Iowa Department of Administrative Services  
109 Southeast 13<sup>th</sup> Street  
Des Moines, Iowa 50319



**OWNER PROJECT NUMBER:** 9500.00

**OWNER REQUEST FOR BID NUMBER:** RFB 950000-01

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**CONSTRUCTION MANAGER:**

McGough Construction  
217 E 2<sup>nd</sup> Street, Suite 120  
Des Moines, Iowa 50309



**CONSTRUCTION MANAGER PROJECT NUMBER:** 101537.001

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**ARCHITECT:**

KCL Engineering  
300 4<sup>th</sup> Street  
West Des Moines, Iowa 50265



**ARCHITECT PROJECT NUMBER:** 26027

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SECTION 00 0107

SEALS PAGE

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge.

Discipline: Electrical Engineer

Company Name: KCL Engineering

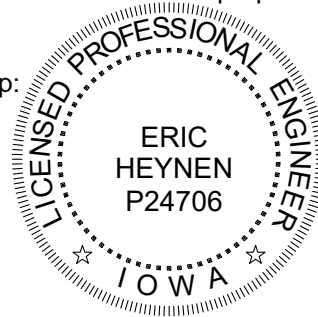
Address: 300 4th Street, West Des Moines

Telephone: (515) 724-7938

Name: Eric Heynen

License#: P24706

Stamp:



Responsibility: \_\_\_\_\_

Div. 26

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge.

Discipline: Mechanical Engineer

Company Name: KCL Engineering

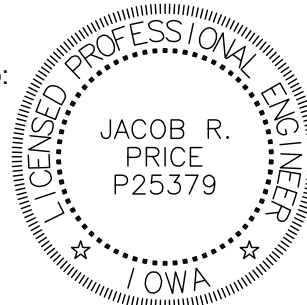
Address: 300 4th Street, West Des Moines

Telephone: (515) 724-7938

Name: Jacob Price

License#: P25379

Stamp:



Responsibility: \_\_\_\_\_

Div. 23, 40

I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge.

Discipline: Structural Engineer

Stamp:

Company Name: Shoemaker & Haaland

Address: 160 Holiday Rd, Coralville, IA 52241

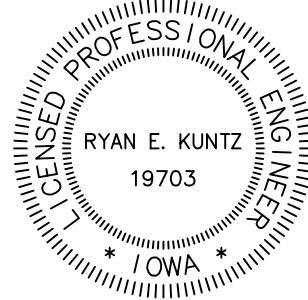
Telephone: (319) 351-7150

Name: Ryan Kuntz

Responsibility: \_\_\_\_\_

License#: 19703

Div. 03, 05



I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge.

Discipline: \_\_\_\_\_

Stamp:

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Name: \_\_\_\_\_

Responsibility: \_\_\_\_\_

License#: \_\_\_\_\_

\_\_\_\_\_

**END OF SECTION**

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**DRAWINGS**

<b>1.01</b>	<b>SHEET</b>	<b>TITLE</b>
A.	C100	Civil Grading and SWPPP Plan
B.	S000	General Notes
C.	S100	Demo Plan, Foundation Plan, and Details
D.	S101	Tank Access Plan and Details
E.	M000	Mechanical General Notes & Symbols
F.	M100	Mechanical Plan
G.	M300	Mechanical Schematic
H.	M500	Mechanical Schedules Tank Bid Documents
I.	E000	Electrical Plan

**END OF SECTION**

**SECTION 00 0116**

**BID SUBMITTAL CHECKLIST**

**PART 1 - GENERAL**

**1.01 BID SUBMITTAL CHECKLIST**

- A. The Bidder is responsible to see that the bid is submitted online at [IMPACS Electronic Procurement System](#) on or before the due date and time specified. Late bids shall not be accepted.
- B. Bids shall be typewritten or in ink. All information requested shall accompany the bid. All blocks shall be completed. Errors shall be lined out and initialed.
- C. The right is reserved to reject any or all bids. The State may waive minor deficiencies or informalities in the best interest of the State of Iowa.
- D. A properly prepared and submitted bid document is the bidder's responsibility.
- E. Bids cannot be changed after the bid opening.
- F. In all cases, no verbal communications by any party will override written communications from the issuing office.
- G. The Bid Form shall be completed in full and signed and submitted by an officer of the bidder with authority to bind in a contract.
- H. If Bid Bond is called for, it shall accompany the Bid submission.
- I. If Non-discrimination Clause information is called for, it shall accompany the Bid submission.
- J. If Targeted Small Business Pre-bid Contact information is called for, it shall accompany the Bid submission.
- K. If Certificate of Site Visit form is called for, it shall accompany the Bid submission.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 00 1113**

**NOTICE TO BIDDERS**

**RFB #950000-01**

The Iowa Department of Administrative Services will be receiving bids for replacing four existing diesel tanks with one twenty-thousand-gallon diesel tank at Mount Pleasant Correctional Facility, Mount Pleasant, Iowa 52641.

The Iowa Department of Administrative Services anticipates construction to begin on July 15<sup>th</sup>, 2026 and end January 22<sup>nd</sup>, 2027.

Bids must be received no later than **2:00 pm, Thursday, June 11<sup>th</sup>, 2026**. Late bids will not be considered. Bids shall be submitted on [IMPACS Electronic Procurement System](#). The Bid shall be accompanied by a Bid Security as set forth in the Instructions to Bidders in the amount of 5% of the total bid amount. Each bid shall be accompanied by a bid bond, cashier's check or a certified check drawn upon a solvent bank chartered under the laws of the United States of America.

**Bid Opening**

The time and place of bid opening will be held at [meet.google.com/mfc-zkct-vvg](https://meet.google.com/mfc-zkct-vvg) and teleconference number (US)+1 347-754-4876 Pin: 939 524 129# at 3:00 pm on June 11<sup>th</sup>, 2026.

The Iowa Department of Administrative Services reserves the right to reject any and all bids, and to waive irregularities and to accept a bid that is deemed in the best interest of the State of Iowa.

Bidders must comply with all affirmative action/equal employment opportunity provisions of the State of Iowa and the Federal Government.

This project is exempt from Iowa Sales Tax. Davis Bacon Wages **will not** apply to this project.

Questions must be submitted by 2:00 pm, May 28<sup>th</sup>, 2026, to the Issuing Officer.

Bidding documents may stipulate a specific product. Substitute product will be considered if a written request is received by 2:00 pm, May 28<sup>th</sup>, 2026, prior to bid opening. Substitution requests will be considered for all products per Section 01 2500 Substitution Procedures, even if the specification does not include a statement such as "or equal," "equal to," "equivalent to," or "basis of design," unless otherwise noted.

An **optional** Pre-Bid meeting will be held on Wednesday, May 20<sup>th</sup>, 2026 at 11:00 am at Mount Pleasant Correctional Facility, Mount Pleasant, Iowa 52641.. This meeting is not mandatory but is highly recommended. See next page for a document showing meeting location for Pre-Bid meeting.

Bidding Documents, including drawing sheets bearing the project name MPCF Diesel Tanks Replacement & Spill Containment, Dated 04/29/26 and the Project Manual prepared by KCL Engineering dated 04/29/26, may be obtained from Rapids Reproductions by visiting [www.rapidsrepro.com](http://www.rapidsrepro.com) or by calling (515) 251-3222 on Monday, May 11<sup>th</sup>, 2026.

For further information regarding this project contact:  
Katelyn Howells – Issuing Officer  
Phone: (515) 721-7856  
E-Mail: [construction.procurement@das.iowa.gov](mailto:construction.procurement@das.iowa.gov)

**END OF SECTION**

# MPCF Diesel Tank Replacement Pre-Bid Meeting Location



 Parking for Pre-Bid meeting

 Entrance for Pre-Bid meeting

**SECTION 00 2113**  
**INSTRUCTIONS TO BIDDERS**  
**RFB #950000-01**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Description
- B. Owner
- C. State Agency Representatives and Contacts
- D. Proposal Form and Submissions
- E. Taxes
- F. Alternate Bids
- G. Drawings
- H. Bid Security
- I. Due Date and Time for Receipt of Bids
- J. Commencement and Completion Date
- K. Site Visit
- L. Pre-bid Meeting
- M. Questions
- N. Addenda and Interpretations of the Contract Documents
- O. Substitutions
- P. Obligation of Bidder
- Q. Public Records and Requests for Confidential Treatment
- R. Withdrawal of Bid
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- T. Basis of Bids
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- W. Preference
- X. Qualifications
- Y. Insurance
- Z. Form of Agreement between Owner and Contractor
- AA. Execution of Contract
- BB. Laws and Regulations
- CC. Contract Documents and Order of Precedence
- DD. Conditions of the Work
- EE. Subcontracts
- FF. Project Manual/Drawings

**1.02 PROJECT DESCRIPTION**

- A. Project Description: Replacing four existing diesel tanks with one twenty-thousand-gallon diesel tank.

**1.03 OWNER**

- A. State of Iowa, Department of Administrative Services, 109 SE 13th St, Des Moines, IA 50319

**1.04 STATE AGENCY REPRESENTATIVES AND CONTACTS**

- A. PURCHASING AGENT: Purchasing Agent – Issuing Officer, State of Iowa, Department of Administrative Services, Hoover State Office Building, 3<sup>rd</sup> floor, 1305 East Walnut Street, Des Moines, IA 50319-0105, Phone: 515-823-9327; email: [construction.procurement@das.iowa.gov](mailto:construction.procurement@das.iowa.gov)
- B. OWNER REPRESENTATIVE: Brandon Adams, State of Iowa, Department of Administrative Services, 109 SE 13<sup>th</sup> Street, Des Moines, IA 50319, Phone: 515-201-2197; email: [brandon.adams@das.iowa.gov](mailto:brandon.adams@das.iowa.gov)
- C. ON-SITE COORDINATOR: Tony Kempker, Facility Manager, 1200 East Washington Mt. Pleasant, Iowa 52641, Phone: 319-931-9460; email: [anthony.kempker@iowa.gov](mailto:anthony.kempker@iowa.gov)
- D. CONSTRUCTION MANAGER CONTACT: Aaron Ledebor, McGough 217 E 2<sup>nd</sup> Street, Suite 120, Des Moines, IA 50309, Phone: 605-940-5488; email: [aaron.ledebor@mcgough.com](mailto:aaron.ledebor@mcgough.com)
- E. DESIGN PROFESSIONAL CONTACT: Jacob Price, KCL Engineering, 214 N Linn, Suites 1 & 2 Iowa City, IA 52245, Phone: 563-299-7722; email: [jprice@kclengineering.com](mailto:jprice@kclengineering.com)

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

**3.01 PROPOSAL FORM AND SUBMISSION**

- A. A properly prepared and submitted bid is the bidder’s responsibility. Bids are to be made in accordance with these Instructions to Bidders and items included on the Bid submission. Failure to comply may be cause for rejection.
- B. The Bid is to consist of the required Bid information, together with the other information specified below to be submitted with the Bid, in which copies are included with these Bidding Documents.
  - 1. The total bid package submitted is required to include the following:
    - a. An online submission including:
      - 1) Required Bid Form (To be uploaded online)
      - 2) Required Non-discrimination Clause Information
      - 3) Required Targeted Small Business Pre-bid Contact Information
      - 4) Bid Security (documentation provided by Bidder) (To be uploaded online) (Required)
      - 5) Certification of Site Visit (To be uploaded online if Pre-Bid is Mandatory)
- C. Include the amount for performing all work described in the drawings and specifications for Base Bid and for each Alternate Bid requested.
- D. Acknowledge receipt of all Addenda issued, where so indicated on the Bid Form
- E. All required information to be submitted, by an officer of the company having authority to bind the company in a contract.
- F. Commencement of the work of the contract shall begin with the Contractor’s receipt of a fully executed contract (signed by both parties).
- G. The Owner reserves the right to award a contract for Base Bid only, or for Base Bid in combination with any, or all, identified Alternate Bids. The Owner reserves the right to award a contract for individual Bid Packages, or any combination of Bid Packages. Each Bidder must comply with all of the General Requirements of the project and any requirements of the Project manual that apply to their scope of work.
- H. The company’s Federal I.D. Number and the Iowa Contractors Registration Number shall be included in the Bid Form.
- I. Unless indicated otherwise, the Bid shall be for a single responsibility contract for all work as indicated on the Drawings and specified in the Project Manual, and shall be a lump sum amount. If no change in the Base Bid amount is required with respect to consideration of a particular Alternate Bid, enter “No Change” in the blank for that Alternate Bid.
- J. Where so requested, provide Unit Prices for the designated types of work and in the units specified, in which the Unit Prices would be used as adjustments to the quantities described in the instructions as the basis for the Base Bid and any Alternate Bid work. A Unit Price would be applicable in the event the Owner should request additional work of that type beyond the extent

and quantity that has been established as the scope of the work by graphic delineation and notations on the Drawings, or by otherwise stipulating in the Bidding Documents a numerical quantity of the work, for the Bidder's use in determining the lump sum bid amount for the Base Bid and any requested Alternate Bid containing such work. The Unit Prices shall also be used to adjust the Contract Amount for actual quantities of work involved when the work subject to Unit Price adjustment differs by being less in quantity than that contemplated by the original scope of work for the respective Base Bid or Alternate Bid.

- K. Completed State of Iowa Nondiscrimination Clause information and Subcontractor Targeted Small Business Enterprise Pre-Bid Contact Information, included in these Bidding Documents, are to accompany the Bid submission. Bidders shall comply with all affirmative action/equal opportunity provisions of State and Federal laws. The Owner seeks to provide opportunities for Targeted Small Businesses in accordance with the provisions of Chapter 73 of the Code of Iowa.
- L. All Bid information is to be submitted online. Any required Bid Security shall be provided, in the form and amount specified elsewhere in these Instructions to Bidders, at the time of submission of the Bid. When a site visit is mandatory as specified elsewhere in these Instructions to Bidders, and a Certificate of Site Visit is required to be submitted with the Bid as evidence of such visit having occurred for purposes of observing the conditions of the site and the work proposed therein, the Certificate shall be uploaded with the bid submission.

### **3.02 TAXES**

- A. In accordance with Section 423 of the Code of Iowa and 701-19 of the Iowa Administrative Rules, Iowa Construction Sales Tax Exemption Certificates for this project will be issued. Do not include Iowa sales tax or use tax, or any local option sales tax, on construction materials in determining your bid prices. The successful Contractor will be required to notify the Department of Administrative Services project manager of all Subcontractors within forty-eight (48) hours after the published date and time by which bids must be submitted. Information on the Contractor and each Subcontractor shall include the firms' name, address, contact person, federal tax identification number, and the Iowa contractor registration number. For the Contractor and each Subcontractor, designate the type of trade or category of work that is to be provided on the project. The Construction Manager for the Department of Administrative Services must be informed when any Subcontractor is added to the project. Following receipt of the information, the Construction Manager for the Department of Administrative Services will arrange to have an authorization letter and certificate (please see sample, included in the Project Manual) issued on behalf of the Contractor and each Subcontractor and will forward the documents to the Contractor for distribution and use by each in purchasing construction materials for this project. Certificates issued for this project shall be used for tax-exempt purchasing construction materials for this project only.

### **3.03 ALTERNATE BIDS**

- A. Bidders are to bid all Alternates requested on the Bid Form. Alternates quoted will be reviewed and accepted or rejected at the option of the Department of Administrative Services. Accepted Alternates will be identified in the Owner-Contractor agreement. Indicate the price for Alternates described, as shown on the Drawings and specified in the Project Manual, and identify in the correct location on the Bid Form.

### **3.04 DRAWINGS AND PROJECT MANUAL**

- A. Drawings and Project Manual are specified in the Notice to Bidders or any extension thereof made by Addendum.

### **3.05 BID SECURITY**

- A. Each Bid shall be accompanied by Bid Security.
- B. The Bid Security shall be in the form of a Bid Bond, Certified check, or Cashier's check in an amount not less than five percent (5%) of the maximum value of the Bid, including any additive

Alternates. NOTE: Checks other than Certified checks and Cashier's checks will not be accepted. Bonds shall be issued by a bonding company licensed to transact business in the State of Iowa. The Attorney in Fact who signs the Bond shall file with the Bond a certified and effectively dated copy of their Power of Attorney. The Bid Security shall be made payable to the Iowa Department of Administrative Services, and shall accompany the Bid. If a Bid Bond is not used, copies of Certified checks or Cashier's checks must be uploaded and hand delivered, in a sealed envelope, or mailed upon request. The Bid Security shall serve as a guarantee that a Bidder who is offered a contract will enter into an Agreement with the State of Iowa and will file an approved surety company's Performance Bond, Payment Bond and the Insurance Certificates as evidence of the required Insurance prior to execution of the contract. Upon failure to comply, the Bid Security shall be forfeited as liquidated damages. The governmental entity shall retain the bid security furnished by the successful bidder until the approved contract form has been fully executed, a bond has been filed by the bidder guaranteeing the performance of the contract, and the contract and bond have been approved by the governmental entity. The provisions of chapter 573, where applicable, apply to contracts awarded under this chapter. The governmental entity shall promptly return the checks or bidder's bonds of unsuccessful bidders to the bidders once the Notice of Intent to Award is issued.

### **3.06 DUE DATE AND TIME FOR RECEIPT OF BIDS**

- A. Properly completed Bids shall be submitted online through [IMPACS Electronic Procurement System](#), no later than the time and date specified in the Notice to Bidder or any extension thereof made by Addendum. Written, emailed, oral or telephonic Bids are invalid, and will not receive consideration. The Bidder shall assume full responsibility for the timely online submission of the Bid. Late bids will not be accepted.

### **3.07 COMMENCEMENT AND COMPLETION DATES**

- A. Commencement of the Work of the Contract shall be the day of receipt by the selected Contractor of the fully-executed contract. Final completion of the Work of the contract shall be acknowledged as a part of the Contractor's proposal.

### **3.08 SITE VISIT**

- A. A site visit by the prospective bidder is highly recommended at the time of the Pre-Bid Meeting of this project.

### **3.09 PRE-BID MEETING**

- A. Pre-Bid Meeting will be specified in the Notice to Bidders or any extension thereof made by Addendum.

### **3.010 QUESTIONS**

- A. Questions on this project may be raised and discussed at the time of the Pre-Bid Meeting or by submitting in writing to the issuing officer as specified in the Notice to Bidders or any extension thereof made by Addendum.

### **3.011 ADDENDA AND INTERPRETATIONS OF THE CONTRACT DOCUMENTS**

- A. Any person contemplating submitting a proposal for the proposed Contract, who is in doubt as to the true meaning of any part of the Bidding Documents, shall submit a written request for an interpretation thereof. The person submitting a request will be responsible for its prompt delivery. Every request for such interpretation should reference the Bid Number specified in the Bidding Documents, and shall be made in writing (email preferred). Questions shall be submitted to the previously identified Purchasing Agent for the Department of Administrative Services. To be given consideration, requests shall be received as specified in the Notice to Bidders or any

extension thereof made by Addendum. Replies, which revise or correct the Bidding Documents, or provide necessary clarifications, will be issued in the form of a written Addendum to the Bidding Documents. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, or changes. The Bidder is to include any resultant cost changes in the Bid Sum. Addenda will be posted electronically at the respective bid site where the bid is initially posted. Acknowledgment by the Bidder of each issued Addendum shall be noted in the location so indicated on the Bid. All Addenda issued shall become part of the Contract Documents.

### **3.012 SUBSTITUTIONS**

- A. Where the Bidding Documents stipulate a specific product be provided by naming one or more manufacturer and model, a substitute product will be considered when a written request is received as specified in the Notice to Bidders or any extension thereof made by Addendum prior to bid opening. Substitution requests will be considered for all products per Section 01 2500 Substitution Procedures, even if the specification does not include a statement such as “or equal,” “equal to,” “equivalent to,” or “basis of design,” unless otherwise noted. Substitution requests shall be emailed to the Issuing Officer at the email address provided in Instructions to Bidders Section 1.04.

### **3.013 OBLIGATION OF BIDDER**

- A. It shall be the responsibility of each Bidder contemplating the submission of a Bid for the proposed Contract to fully acquaint himself/herself with conditions at the work site, project requirements, and to become acquainted thoroughly with the work, and all conditions that may be related to it. No considerations or revision in the contract price or scope of the project will be considered by the Owner for any item that could have been revealed by a thorough on-site inspection and examination.
- B. By submission of a Bid, it shall be understood that the Bidder assures that he/she has reviewed and is thoroughly familiar with the project requirements, contract conditions and supplementary conditions, the drawings, specifications, addenda, and that the bidder is aware of the conditions existing at the site that may relate to the work of this project. Failure of any Bidder to examine any form, document, or other instrument shall in no way relieve the Bidder from any obligation in respect to his/her Bid.

### **3.014 PUBLIC RECORDS AND REQUESTS FOR CONFIDENTIAL TREATMENT**

- A. The Agency’s release of public records is governed by Iowa Code chapter 22. Contractors are encouraged to familiarize themselves with Chapter 22 before submitting a Proposal. The Agency will copy and produce public records upon request as required to comply with Chapter 22 and will treat all information submitted by a Contractor as non-confidential records unless Contractor requests specific parts of the Proposal be treated as confidential at the time of the submission as set forth herein AND the information is confidential under Iowa or other applicable law.
- B. A Contractor requesting confidential treatment of specific information must: (1) fully complete Form 22 (Available at <https://das.iowa.gov/sites/default/files/procurement/pdf/Form%2022-ConfidentialityRequest-RFB.pdf>), (2) identify the request in the transmittal letter with the Contractor’s Proposal, (3) conspicuously mark the outside of its Proposal as containing confidential information, (4) mark each page upon which confidential information appears, and (5) submit a “Public Copy” from which the confidential information has been excised.
- C. Form 22 will not be considered fully complete unless, for each confidentiality request, the Contractor: (1) enumerates the specific grounds in Iowa Code chapter 22 or other applicable law that supports treatment of the material as confidential, (2) justifies why the material should be maintained in confidence, (3) explains why disclosure of the material would not be in the best interest of the public, and (4) sets forth the name, address, telephone, and e-mail for the person authorized by Contractor to respond to inquiries by the Agency concerning the confidential status of such material.

- D. The Public Copy from which confidential information has been excised is in addition to the number of copies requested in Section 3 of this RFP. The confidential material must be excised in such a way as to allow the public to determine the general nature of the material removed and to retain as much of the Proposal as possible.
- E. **Failure to request information be treated as confidential as specified herein shall relieve Agency and State personnel from any responsibility for maintaining the information in confidence. Contractors may not request confidential treatment with respect to pricing information and transmittal letters. A contractor's request for confidentiality that does not comply with this section or a contractor's request for confidentiality on information or material that cannot be held in confidence as set forth herein are grounds for rejecting contractor's Proposal as non-responsive. Requests to maintain an entire Proposal as confidential will be rejected as non-responsive.**
- F. If Agency receives a request for information that Contractor has marked as confidential and if a judicial or administrative proceeding is initiated to compel the release of such material, Contractor shall, at its sole expense, appear in such action and defend its request for confidentiality. If Contractor fails to do so, Agency may release the information or material with or without providing advance notice to Contractor and with or without affording Contractor the opportunity to obtain an order restraining its release from a court possessing competent jurisdiction. Additionally, if Contractor fails to comply with the request process set forth herein, if Contractor's request for confidentiality is unreasonable, or if Contractor rescinds its request for confidential treatment, Agency may release such information or material with or without providing advance notice to Contractor and with or without affording Contractor the opportunity to obtain an order restraining its release from a court possessing competent jurisdiction.

### **3.015 WITHDRAWAL OF BID**

- A. A Bid may be modified or withdrawn only before the time and date for receipt of Bids. Said request for modification or withdrawal of a bid must be completed online through [IMPACS Electronic Procurement System](#). A Bid shall remain valid for consideration by the Owner for the following period(s) of time after the date specified for receipt of Bids, or until such time following that period that the apparent low bidder requests in writing that the Bid be withdrawn, after which the Bid may be withdrawn without forfeiture of any required Bid Security. The Bid shall be valid for not less than thirty (30) calendar days after the date Bids are specified to be due. With the approval of the Department of Administrative Services, a bid may be withdrawn after opening, but only if the bidder provides prompt written notification that adequately documents the commission of an honest error that may cause undue financial loss.

### **3.016 BID OPENING**

- A. All bids received on or before the due date and time specified in the Notice to Bidder or any extension thereof made by Addendum will be opened and the name of the Bidder and the amount of their Bid will be announced.

### **3.017 BASIS OF BIDS**

- A. The Bidder shall include all additional documents or appendices that are requested to be submitted concurrent with the Bid submission; failure to comply may be cause for rejection.
- B. In accordance with Iowa law, Section 8A.311: A bidder, to be considered for an award of a state construction contract, shall disclose to the state agency awarding the contract the names of all subcontractors and suppliers who will work on the project being bid, within forty-eight (48) hours after the published date and time by which bids must be submitted. A bidder shall not replace a subcontractor or supplier disclosed without the approval of the state agency awarding the contract.
  - 1. A bidder, prior to an award or who is awarded a state construction contract, shall disclose all of the following, as applicable:
    - a. If a subcontractor or supplier disclosed (under the preceding) by a bidder is replaced, the reason for replacement and the name of the new subcontractor or supplier;

- b. If the cost of work to be done by a subcontractor or supplier is changed or if the replacement of a subcontractor or supplier results in a change in the cost, the amount of the change in cost.
  - c. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.
- C. The Bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must:
- 1. Be registered in the State of Iowa and have an Iowa Contractor's Registration number, and
  - 2. Be acceptable to the Owner.

### **3.018 INFORMALITIES/ REJECTION OF BIDS**

- A. The Iowa Department of Administrative Services reserves the right to waive any irregularities or informalities and to enter into a Contract with a Bidder, or to reject any or all bids as it deems to be in the best interest of the State, without penalty.

### **3.019 CONSIDERATION OF BIDS**

- A. It is the intent of the Department of Administrative Services to award a Contract to the lowest responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and is determined to be compliant with all Bidding Requirements, and does not exceed the funds available for construction.
- B. Bidder is to bid on each Alternate Bid requested. Failure to do so may result in disqualification of the bid. The Department of Administrative Services reserves the right to accept any, or no, Alternate Bid. Alternate Bids may be considered in any order or combination, and the low successful Bidder will be determined on the basis of the sum of the Base Bid and the Alternate(s) accepted at the time of the Contract award.
- C. In evaluating Bids, any proposal offered by a Bidder for an alternate design, or for materials other than those shown or specified for the Base Bid or for Alternate Bid construction under the proposed Construction Documents or called for by any issued Addenda to those Construction Documents, will not be considered in determining the low successful Bidder. However, the Department of Administrative Services reserves the right to consider any such Bidder-proposed (Contractor's Alternate) alternate designs or materials with the low successful Bidder, after the low successful Bidder is determined in the manner described above (A and B).
- D. Notice of Intent to Award the Bid(s) will be sent to all Respondents submitting a timely Bid and may be posted at the website shown on the RFB cover sheet. Negotiation and execution of the Contract(s) shall be completed no later than fifteen (15) days from the date of the Notice of Intent to Award or such other time as designated by Agency. If the successful Bidder fails to negotiate and deliver an executed Contract, including all required documents such as payment and performance bonds and insurance certificate, by that date, the Agency, in its sole discretion, may cancel the award and award the Contract to the remaining Bidder the Agency believes will provide the best value to the State.

### **3.020 PREFERENCE**

- A. By virtue of statutory authority, a preference shall be given to Iowa domestic labor, products produced and provisions grown within the state of Iowa, in accordance with the provisions of Chapter 73, Code of Iowa and any amendments thereto.
- B. Enforcement of reciprocal resident bidder preference and resident labor force preference codified at Iowa Code Section 73A.21.
  - 1. NOTICE: Failure on the part of the bidder to carefully read the following paragraphs and to provide the information requested below may make the bidder's bid materially nonresponsive and therefore ineligible for contract award. Violations of Iowa Code Section 73A.21 may, among other things, result in civil penalties assessed by the Commissioner of the Division of

Labor of Iowa Workforce Development. The bidder should seek out the advice of an attorney if he or she has questions about Iowa Code Section 73A.21. As a part of the competitive procurement of contracts for Public Improvements that must be awarded to the low bidder (if the bid is responsive and the bidder is deemed responsible), Public Bodies shall allow a preference to Resident Bidders if a Nonresident Bidder places a bid for the contract for the Public Improvement and that Nonresident Bidder's state or foreign country gives resident bidders of that state or foreign country a preference (including a labor force preference or any type of preferential treatment). The preference allowed, or reciprocally applied, shall be equal to the preference given or required by the state or foreign country in which the Nonresident Bidder is a resident bidder.

"Public Body" means the State of Iowa (and its agencies) and any of its political subdivisions, including school districts, public utilities, and the state board of regents.

"Public Improvement" means a building or other construction work to be paid for in whole or in part by the use of funds of the State of Iowa, its agencies, and any of its political subdivisions and includes road construction, reconstruction, and maintenance projects.

"Resident Bidder" means a person or entity authorized to transact business in of the State of Iowa and having a place of business for transacting business within the State of Iowa at which it is conducting and has conducted business for at least three years prior to the date of the first advertisement for the public improvement. Note, however, that if a nonresident bidder's state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable as to bidders from that state or foreign country.

"Nonresident Bidder" means a person or entity who does not meet the definition of a resident bidder.

- C. Nonresident bidders shall be required to certify on the Bid submission, where so indicated, the state or foreign country in which the firm is a resident, and if that state or foreign country uses a percentage for in-state bidders and the amount of the preference.
- D. If it is determined that this may cause denial of federal funds which would otherwise be available, or would otherwise be inconsistent with requirements of federal law, this section shall be suspended, but only to the extent necessary to prevent denial of the funds or to eliminate the inconsistency with federal requirements.

### **3.021 QUALIFICATIONS**

- A. In accordance with Iowa Code 26.9(2) and 26.16, no potential bidder shall be required to provide confidential or proprietary information or meet any class requirements as a precondition to submitting a responsive bid. However, as noted in Iowa Code 26.9(2), the lowest responsive bidder may be required to provide additional information to verify responsibility prior to and as a condition of obtaining final award of the contract. Any qualification requirements contained in any bid document indicates only preferred qualifications, not a precondition to bid, and the lowest responsive bidder's qualifications will be evaluated individually based on all information provided.
- B. The Owner may make such investigations as he or she deems necessary to determine the ability of the awarded Bidder to perform the required work, and the awarded Bidder shall furnish to the Owner all such information and data for this purpose. The Owner reserves the right to rescind any awarded Bid if the evidence submitted by, or in investigation of, such Bidder fails to satisfy the Owner that the Bidder is properly qualified to carry-out the obligations of the Contract and to complete the Work contemplated therein.
- C. Bidders shall be registered as a Construction Contractor with the Labor Commissioner, Iowa Workforce Development Department, as required by Chapter 91C of the Code of Iowa. Bidder's Iowa Contractor Registration Number shall be included in the location provided in the Bid Form.
- D. Non-resident corporations submitting bids must be in compliance with Section 490.1501 of the Code of Iowa and legally authorized thereby to carry-on such business in the State of Iowa as is required by the Contract Documents.
- E. An out-of-state Bidder, if awarded a contract, will be required to submit evidence of authorization to do business in the State of Iowa.

### **3.022 INSURANCE**

- A. Insurance Requirements
  - 1. The Contractor shall maintain in effect, with insurance companies of recognized responsibility, at its expense, insurance covering its work of the type and in amounts required by this Contract. The Contractor's insurance shall, among other things, insure against any loss or damage resulting from the Contractor's performance of this Contract. All such insurance policies shall remain in full force and effect for the entire life of this Contract and shall not be canceled or changed except after thirty (30) days written notice to the Owner.
  - 2. **Amounts of Insurance Required – Refer to ConsensusDOCS 802 (see template in Project Manual)**
- B. Certificates of Coverage
  - 1. Certificates of the insurance described above shall be submitted to the Owner before starting any construction activities and shall be subject to approval by the Owner. The Contractor shall provide certificates for the insurance required. The insurer shall state in the certificate that no cancellation of the insurance will be made without at least thirty (30) days prior written notice to the Contractor. Upon receipt of any notice of cancellation or alteration, Contractor shall within ten (10) days procure other policies of insurance, similar in all respects to the policy or policies, about to be canceled or altered, and, if the Contractor fails to provide, procure, and deliver acceptable policies of insurance, or satisfactory evidence thereof, in accordance with the terms hereof then, at the Owner's option, Owner may obtain such insurance at the cost and expense of Contractor, without the need of any notice to Contractor.
- C. No Limitation of Liability
  - 1. Acceptance of the insurance certificates by the Owner shall not act to relieve the Contractor of any obligation under this Contract. All insurance policies and certificates shall be issued only by companies authorized to transact business in the State of Iowa. It shall be the responsibility of the Contractor to keep the respective insurance policies and coverage's current and in force during the life of this agreement.
  - 2. A Sample Certificate of Insurance is attached for reference following this Section.

### **3.023 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR**

- A. The Agreement for the Work will be written on ConsensusDOCS 802 Form of Agreement between Owner and Contractor (sample of the document with modifications incorporated is bound in this Project Manual).

### **3.024 EXECUTION OF CONTRACT**

- A. Contract documents shall mean and include the following:
  - 1. Contract: ConsensusDOCS 802
  - 2. Performance and Payment Bonds
  - 3. Project Manual
  - 4. Drawings
  - 5. Numbered Addenda issued after initial publication of Bid Documents
  - 6. Numbered Modifications (Change Orders) issued after Contract is signed

### **3.025 LAWS AND REGULATIONS**

- A. The Bidder's attention is directed to the fact that all applicable laws and regulations of Federal and State agencies having jurisdiction over the construction of this project shall apply to any contract resulting from this proposal, and it shall be deemed that those rules and regulations are made a part of such contract the same as if set forth in their entirety therein. By submitting a Bid, the Bidder confirms that he/she is familiar with and understands the Contractor's responsibility under all Federal and State of Iowa laws and regulations with respect to the Work described by the proposed Contract Documents.

### **3.026 CONTRACT DOCUMENTS AND ORDER OF PRECEDENCE**

- A. Where an irreconcilable conflict exists among Applicable Legal Requirements, this Contract, the specifications in the Materials and the Drawings, the earliest item mentioned in this sentence involving a conflict shall control over any later mentioned item or items subject to such conflict unless doing so would result in reducing the Bidder's duty of care or obligations under this Contract, in which case the terms resulting in the highest requirements for Bidder performance shall control.

**3.027 CONDITIONS OF THE WORK**

- A. Each bidder must fully inform him/herself of the conditions under which the work is to be performed at the site of the work, the obstacles which may be encountered, and all other relevant matters concerning the work to be performed. Failure to do so will not relieve a successful bidder of the obligation to furnish all material and labor necessary to carry out the provisions of the contract. When a site visit is required by provisions located elsewhere in these Instructions to Bidders, as a site tour in conjunction with a mandatory Pre-Bid Meeting, it shall be the Bidder's responsibility to fulfill this obligation as a condition of bidding the Work described in the Bidding Documents.
- B. No allowance will be made for any additional compensation by reason of any matter or condition with which the bidder might have fully informed him/herself, but failed to do so prior to bidding. Insofar as possible, the Contractor and all subcontractors shall employ such methods or means in carrying out the work so as not to cause any interruption of, or interference with, the work of any other subcontractor or trade.

**3.028 SUBCONTRACTS**

- A. The Prime Contractor shall be responsible for notifying all subcontractors and suppliers and informing them that they are bound in each case by all applicable provisions of the bidding information and those of the proposed Form of Agreements as defined in the Contract Documents.

**END OF SECTION**

## SECTION 00 2113.01

### IMPACS Public Construction Bidders User Guide

Public construction bids must be submitted on-line at [IMPACS Electronic Procurement System](#).

Bidders must be registered in IMPACS to submit a Bid.

To create an account, enter your email address and click on "Next" and click "Create Account". Bidder must enter all fields noted with \* including legal company name, contact first and last name, phone number, confirm email address, password, re-enter password, select account recovery question including answer, confirm answer, select box accepting websites use terms and conditions and select security check box "I'm not a robot".

On the [IMPACS Electronic Procurement System](#) Customer Portal Home page, Bidder selects "View Event" in the Sourcing Events section.

Event Number	Status	Event Title	Dates	Action
RFB923700-02	Open	Hoover East Side Pavers	Open: 4/27/2022 12:00:00 PM CDT Close: 5/5/2022 12:00:00 PM CDT	View Event

Bidders can view event details including description, prerequisites, buyer attachments, questions and answers.

To submit a Bid, Bidder must select "**Yes, I intend to Bid**". Bidder must complete the following sections.

**Prerequisites** - Bidder must complete all prerequisites.

- Bidder must upload a file of the Bid Security/Bond for 5% of total Bid Amount and certify that if they are awarded the construction contract they will enter into the contract at the Bid Amount submitted.
- Bidder must upload the completed and signed Bid Form.  
**NOTE: Bids are to be entered on the Bid Form only; not in the IMPACS. As a result, IMPACS will display a bid amount of \$0.**

**Questions** - Bidder must complete all questions.

**Review & Submit** - Bidder must select the certification box certifying that the statements and information in response are true and correct to the best of their knowledge and belief.

SECTION 00 2113.02

**SAMPLE**

**CERTIFICATE OF LIABILITY INSURANCE**



DATE (MM/DD/YYYY)  
XX/XX/XXXX

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER <b>Agent's Name</b> <b>Agent's Address</b>	CONTACT NAME: <b>Agent's Information</b>	
	PHONE (A/C, No, Ext): E-MAIL ADDRESS:	FAX (A/C, No):
INSURED <b>Trade Contractor's Name</b> <b>Trade Contractor's Mailing Address</b>	INSURER(S) AFFORDING COVERAGE	
	INSURER A: <b>Company &amp; (AM Best Rated &amp;/VI or Better)</b>	NAIC # <b>Admitted</b>
	INSURER B:	Carriers
	INSURER C:	
	INSURER D:	
	INSURER E: INSURER F:	

**COVERAGES**

**CERTIFICATE NUMBER:**

**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL/SUBR INSD / W/D	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS <b>Minimum</b>
A	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER	X X	#TBD-CGL	3/1/17	3/1/18	EACH OCCURRENCE \$ <b>1,000,000</b> DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ <b>1,000,000</b> GENERAL AGGREGATE \$ <b>2,000,000</b> PRODUCTS - COM/OP AGG \$ <b>1,000,000</b>
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS	X X	#TBD-AL	3/1/17	3/1/18	COMBINED SINGLE LIMIT (Ea accident) \$ <b>1,000,000</b> BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
C	UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$	X X	#TBD-UMB	3/1/17	3/1/18	EACH OCCURRENCE \$ <b>10,000,000</b> AGGREGATE \$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A X	#TBD-WC	3/1/17	3/1/18	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ <b>500,000</b> E.L. DISEASE - EA EMPLOYEE \$ <b>500,000</b> E.L. DISEASE - POLICY LIMIT \$ <b>500,000</b>
E	<b>Owners Contractors</b> <b>Protective Liability</b>		#TBD-OCP	3/1/17	3/1/18	*Limits equal to CGL (or) as required by owner (Note- Would be either CGL or OCP, not both)

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)  
**Additional Insured on a Primary & Non-Contributory basis (CGL;AL;UMB/Excess) in favor of : (Owner) Iowa Department of Administrative Services (DAS), Officers, Directors, Members, Consultants, Agents, and Employees.**  
**Waiver of Subrogation (CGL;AL;WC/EL;UMB/Excess) in favor of: (Owner) Iowa Department of Administrative Services (DAS), Officers, Directors, Members, Consultants, Agents, and Employees.**  
**Project XXXX.XX** (Number varies by project)

**CERTIFICATE HOLDER**

**CANCELLATION**

Iowa Department of Administrative Services (DAS) 109 SE 13th Street Des Moines, IA 50319	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE <b>Signature</b>
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**SECTION 00 3113**

**PRELIMINARY SCHEDULE**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Preliminary Construction Schedule
- B. Schedule Durations

**1.02 PRELIMINARY SCHEDULE**

- A. A preliminary schedule has been identified by the Owner for the implementation of the Project. Refer to the schedule following this Section for references to anticipated milestones and construction duration.
- B. Each step of the Preliminary Schedule is subject to receipt of acceptable bids, Owner's decision process and date of commencement.
- C. A proposed construction schedule shall be submitted by all Trade Contractors to the Construction Manager no later than 48 hours prior to the pre-construction meeting. A revised Construction Schedule will be submitted by the Construction Manager once all preliminary schedules are reviewed and approved by the Owner.
- D. The final construction schedule will be established post award of bids with the cooperation of all contractors.

**1.03 SCHEDULE DURATIONS**

- A. Anticipated Notice of Intent to Award – June 12<sup>th</sup>, 2026
- B. Anticipated Date of Commencement – July 15<sup>th</sup>, 2026
- C. Substantial Completion by – January 22<sup>nd</sup>, 2027

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

Activity Name	Original Duration	Start	Finish	2026				2027				2028				2029
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
<b>9500.00 MPCF Diesel Tank Replacement - Bid Sche</b>	215	28-Apr-26	05-Mar-27	9500.00 MPCF Diesel Tank Replacement - Bid Schedule												
<b>Preconstruction</b>	54	28-Apr-26	14-Jul-26	Preconstruction												
McGough Receive 100% CD Set	1	28-Apr-26*	28-Apr-26	McGough Receive 100% CD Set												
McGough Compile Front-End Specs	5	29-Apr-26	05-May-26	■ McGough Compile Front-End Specs												
McGough Issue Final Docs to Procurement	2	06-May-26	07-May-26	McGough Issue Final Docs to Procurement												
Project Goes Live	1	08-May-26	08-May-26	Project Goes Live												
Bidding	23	11-May-26	11-Jun-26	■ Bidding												
Pre-Bid Meeting	1	20-May-26	20-May-26	Pre-Bid Meeting												
McGough Issue Addendum 01	1	26-May-26	26-May-26	McGough Issue Addendum 01												
Bids Due	0		11-Jun-26	◆ Bids Due												
Issue NOI to Award	5	12-Jun-26	18-Jun-26	■ Issue NOI to Award												
802 Contract Execution	10	16-Jun-26	29-Jun-26	■ 802 Contract Execution												
Contractor Kickoff Meeting	1	19-Jun-26	19-Jun-26	Contractor Kickoff Meeting												
Permitting	10	30-Jun-26	14-Jul-26	■ Permitting												
<b>Procurement</b>	115	30-Jun-26	11-Dec-26	Procurement												
Submit / Review / Approve Submittals	20	30-Jun-26	28-Jul-26	■ Submit / Review / Approve Submittals												
Procure Diesel Tank	95	29-Jul-26	11-Dec-26	■ Procure Diesel Tank												
Procure Misc. Pipe Specialties	5	29-Jul-26	04-Aug-26	■ Procure Misc. Pipe Specialties												
Procure Piping	15	29-Jul-26	18-Aug-26	■ Procure Piping												
<b>Construction</b>	121	15-Jul-26	08-Jan-27	Construction												
Mobilization	2	15-Jul-26	16-Jul-26	Mobilization												
<b>Decommissioning &amp; Demolition</b>	26	17-Jul-26	21-Aug-26	Decommissioning & Demolition												
Temporary Tank & Connections	3	17-Jul-26	21-Jul-26	■ Temporary Tank & Connections												
Remove Diesel From Existing Tanks to Temporary Tank	2	22-Jul-26	23-Jul-26	Remove Diesel From Existing Tanks to Temporary Tank												
Install SWPPP Measures	2	22-Jul-26	23-Jul-26	Install SWPPP Measures												
Isolate / Lockout Existing Tanks	2	24-Jul-26	27-Jul-26	■ Isolate / Lockout Existing Tanks												
Clean Existing Tanks	9	28-Jul-26	07-Aug-26	■ Clean Existing Tanks												
Lead Abatement	2	10-Aug-26	11-Aug-26	■ Lead Abatement												
Remove Existing Diesel Tanks From Site	3	12-Aug-26	14-Aug-26	■ Remove Existing Diesel Tanks From Site												
Remove Concrete Supports & Foundations	3	17-Aug-26	19-Aug-26	■ Remove Concrete Supports & Foundations												
Site Inspection (Environmental Sampling)	2	20-Aug-26	21-Aug-26	Site Inspection (Environmental Sampling)												
<b>Foundation</b>	28	24-Aug-26	01-Oct-26	Foundation												
Survey / Site Grading / Foundation Excavation / Haul of Spoils	5	24-Aug-26	28-Aug-26	■ Survey / Site Grading / Foundation Excavation / Haul of Spoils												
Subgrade Inspection	1	31-Aug-26	31-Aug-26	Subgrade Inspection												
Spread Footings	2	01-Sep-26	02-Sep-26	■ Spread Footings												
Foundation Walls / Anchor Bolt Verification	3	03-Sep-26	08-Sep-26	■ Foundation Walls / Anchor Bolt Verification												
Backfill	2	09-Sep-26	10-Sep-26	Backfill												
Cure Time	15	11-Sep-26	01-Oct-26	■ Cure Time												
<b>Tank / Piping / Structure</b>	16	14-Dec-26	08-Jan-27	Tank / Piping / Structure												
Set Tank	1	14-Dec-26	14-Dec-26	Set Tank												
Install Access Platform	1	15-Dec-26	15-Dec-26	Install Access Platform												
Install Control Panel & Provide Power From Generator Room to Control Panel	5	15-Dec-26	21-Dec-26	■ Install Control Panel & Provide Power From Generator Room to Control Panel												
Piping From Tanks to Existing Pump	5	16-Dec-26	22-Dec-26	■ Piping From Tanks to Existing Pump												
Control Wiring From Control Panel to Tank & Associated Accessories	5	22-Dec-26	30-Dec-26	■ Control Wiring From Control Panel to Tank & Associated Accessories												
Pipe Pressure Testing / Flushing / Cleaning	2	23-Dec-26	28-Dec-26	■ Pipe Pressure Testing / Flushing / Cleaning												
Initial Partial Fill For Testing	1	29-Dec-26	29-Dec-26	Initial Partial Fill For Testing												
Inspections & Approvals - System Pressure Test / Leak Detection Test / Overfill Protection Test / Alarm Verification	5	04-Jan-27	08-Jan-27	■ Inspections & Approvals - System Pressure Test / Leak Detection Test / Overfill Protection Test / Alarm Verification												
<b>Closeout</b>	40	11-Jan-27	05-Mar-27	Closeout												
Punch List	5	11-Jan-27	15-Jan-27	■ Punch List												
Punch List Corrections	5	18-Jan-27	22-Jan-27	■ Punch List Corrections												
Substantial Completion	0		22-Jan-27	◆ Substantial Completion												
Contractor Submit Closeout Documents	30	25-Jan-27	05-Mar-27	■ Contractor Submit Closeout Documents												
Final Completion	0		05-Mar-27	◆ Final Completion												

**9500.00 MPCF Diesel Tank Replacement - Bid Schedule**



**SECTION 00 3126**

**EXISTING HAZARDOUS MATERIAL INFORMATION**

**PART 1 - GENERAL**

**1.01 EXISTING HAZARDOUS MATERIAL INFORMATION**

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions.
- B. The existing hazardous materials survey reports related to this Project, were prepared by:
  - 1. Terracon documents dated 3/16/2026 and 4/29/2026.
- C. Related Requirements:
  - 1. Section 3.12 "Hazardous Materials" in the ConsensusDocs 802 contract for notification requirements if materials suspected of containing hazardous materials are encountered.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**



2640 12<sup>th</sup> Street SW  
Cedar Rapids, Iowa 52404  
P (319) 366-8321  
[Terracon.com](http://Terracon.com)

March 17, 2026

Iowa Department of Administrative Services  
109 East 13<sup>th</sup> Street  
Des Moines, Iowa 50319

Attn: Mr. Brandon Adams  
P (515) 201-2197  
E [Brandon.Adams@iowa.gov](mailto:Brandon.Adams@iowa.gov)

RE: Asbestos and Lead Containing Paint Survey Letter Report  
9502.00 MPCF Four Diesel Tanks  
Mount Pleasant Correctional Facility (MPCF)  
1200 East Washington Street  
Mount Pleasant, Iowa, 52641  
**Terracon Project No. 06265008**

Dear Mr. Adams:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit this report for Terracon's asbestos and lead containing paint survey conducted for the Iowa Department of Administrative Services (DAS or the Client). This service was completed in accordance with Terracon Proposal No. P06267019, dated February 20, 2026. On March 3, 2026, Terracon sampled suspect asbestos-containing materials (ACMs) and collected paint chips for analysis of lead by weight at the Mount Pleasant Correctional Facility (MPCF) above ground tanks (ASTs).

Mr. Cade Lisk, a State of Iowa licensed asbestos inspector (license number 26-14496), collected nine bulk asbestos samples from the ASTs and associated equipment. Samples were placed in a sealable container and labeled with a unique identifier using an indelible marker. The samples collected were submitted under chain of custody for standard turnaround time (TAT) to EMSL Analytical, Inc. in Indianapolis, Indiana, for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per Environmental Protection Agency (EPA) methodology (40 Code of Federal Regulations [CFR] 763, Subpart F). The percentage of asbestos, where applicable, was determined by microscopic visual estimation. EMSL is a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory (NVLAP code 200188-0).

Additionally, Terracon collected three paint chip samples that were also analyzed at the EMSL Indianapolis location via SW-846 Method 700B using Flame Atomic Absorption (FAA). EMSL is accredited under the American Industrial Hygiene Association (AIHA) LAP (accreditation number 157245).

Asbestos was not detected in the samples submitted for analysis. Table 1, attached provides a summary of the sampled materials and their results. A copy of the laboratory analytical report and chain of custody (COC) is also appended. Pictures of sampled materials are attached in Photographic Documentation.

It should be emphasized that although reasonable efforts were made to survey accessible suspect materials, additional suspect but unsampled materials could be located in isolated or other concealed areas. Therefore, if suspicious materials are encountered during renovation or demolition activities that do not appear to have been characterized as ACM or non-ACM, samples should be collected and analyzed prior to disturbing these materials, or the materials can be assumed to be ACM and abated accordingly.

**Two paint chip samples contained lead above the laboratory reporting limit**, but were below the lead based paint threshold of 0.5% lead by weight. The other sample collected was below the laboratory reporting limit. Table 2, attached, provides a summary of the sampled painted surface coatings; additionally, the laboratory analytical report and chain-of-custody are included as an attachment.

Terracon recommends that the contractor(s) involved in the renovation and or demolition activities be notified of the presence of lead on painted components. The Occupational Safety and Health Administration's (OSHA) 29 CFR 1926.62 standards apply regardless of the lead concentrations. *The levels indicated could create conditions above published occupational exposure limits. No other substances were analyzed. The contractor should not rely on this testing and analysis for any purpose other than an indication of the existence of these constituents.*

If waste materials containing lead are generated, they may be regulated as hazardous waste. Waste from demolition activities, such as debris, paint chips, dust, and sludges, which exhibit the toxicity characteristic must be managed and disposed of as hazardous waste under the Resource Conservation and Recovery Act (RCRA). A composite, representative sample of the demolition debris/waste must be tested by the Toxicity Characteristic Leaching Procedure (TCLP) to determine if it is regulated as hazardous waste under 40 CFR 261 Identification and Listing of Hazardous Waste.

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, and conclusions expressed in the report are based on conditions observed during the limited asbestos sampling event

This report has been prepared on behalf of and exclusively for use and reliance by the Iowa Department of Administrative Services. This report is not a bidding document. Contractors or consultants reviewing this survey report must draw their own conclusions regarding further investigation or abatement deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this report. No warranty, express or implied, is made.

Terracon appreciates the opportunity to continue to provide services to the Client. If you have questions regarding the content of this report, or if we can be of further assistance, please contact us at (319) 366-3821 or [Cade.Lisk@Terracon.com](mailto:Cade.Lisk@Terracon.com).

Sincerely,  
Terracon Consultants, Inc.

*Prepared by:*



Jack Wachowski  
Staff Industrial Hygienist

*Reviewed by:*



Eric Harris  
Authorized Project Reviewer

**Attachments:**

- Table 1 – Asbestos Sample Summary
- Table 2 – Paint Chip Sample Summary
- Photographic Documentation
- Laboratory Analytical Reports and COCs

TABLE 1 – Asbestos Sample Summary

HA #	Sample ID	Material Description	Material Location	Sample Location	Total Asbestos Percentage and Type
1	1-PM1-1	Black tar paper/gasket	Between ASTs and saddles	Southeast saddle	None Detected (ND)
	1-PM-2			Southwest saddle	ND
	1-PM1-3			Northwest saddle	ND
2	2-PI3-4	Black piping wrap/insulation	Where pipe tanking enters the concrete	North portion of piping on the East side	ND
	2-PI3-5			Center portion of piping on the East side	ND
	2-PI3-6			South portion of piping on the East side	ND
3	3-CA5-7	White pipe sealant	AST piping joints	Northeast piping joint	ND
	3-CA5-8			Southeast piping joint	ND
	3-CA5-9			Southwest piping joint	ND

**Table 2 – Paint Chip Sample Summary**

Sample ID	Sample Location	Surface Coating Color	Total Lead Percentage by Weight
PS-1	Southeast corner of the South AST	Silver	0.048%
PS-2	Southeast AST saddle	White	< 0.0064%
PS-3	Railing of top platform	Yellow	0.29%

## Photographic Documentation



Photo 1: View of diesel tanks, tank paint contains lead above the laboratory reporting limit.



Photo 2: View of tank saddles with black tar paper/gasket



Photo 3: View of black piping wrap/insulation



Photo 4: View of white pipe sealant



Photo 5: View of walkway above diesel tanks with yellow painted rails containing lead above laboratory reporting limit.

## LABORATORY ANALYTICAL RESULTS and COCs



# EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

<http://www.EMSL.com> / [indianapolislab@emsl.com](mailto:indianapolislab@emsl.com)

EMSL Order: 162602906

Customer ID: ACON77

Customer PO:

Project ID:

**Attention:** Cade Lisk  
Terracon Consultants, Inc.  
2640 12th Street Southwest  
Cedar Rapids, IA 52404

**Phone:** (319) 366-8321

**Fax:** (319) 366-0032

**Received Date:** 03/04/2026 10:41 AM

**Analysis Date:** 03/12/2026

**Collected Date:**

**Project:** MPCF Diesel Tanks / 06267019

## Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
PM1-1 <small>162602906-0001</small>	SOUTHEAST SADDLE BETWEEN ASTS AND SADDLES - BLACK TARPAPER/GASKET	Brown/Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
HA: 1					
PM1-2 <small>162602906-0002</small>	SOUTHWEST SADDLE BETWEEN ASTS AND SADDLES - BLACK TARPAPER/GASKET	Brown/Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
HA: 1					
PM1-3 <small>162602906-0003</small>	NORTHWEST SADDLE BETWEEN ASTS AND SADDLES - BLACK TARPAPER/GASKET	Brown/Black Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
HA: 1					
PI3-4 <small>162602906-0004</small>	NORTH PORTION OF PIPING/EAST SIDE LOCATED WHERE TANK PIPING ENTERS CONCRETE - BLACK PIPING WRAP/INSUL	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
HA: 2					
PI3-5 <small>162602906-0005</small>	CENTER PORTION OF PIPING/EAST SIDE LOCATED WHERE TANK PIPING ENTERS CONCRETE - BLACK PIPING WRAP/INSUL	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
HA: 2					
PI3-6 <small>162602906-0006</small>	SOUTH PORTION OF PIPING/EAST SIDE LOCATED WHERE TANK PIPING ENTERS CONCRETE - BLACK PIPING WRAP/INSUL	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
HA: 2					
CAS-7 <small>162602906-0007</small>	NORTHEAST PIPING JOINT AST PIPING JOINTS - WHITE PIPE SEALANT	Brown/White Fibrous Homogeneous	80% Cellulose	20% Non-fibrous (Other)	None Detected
HA: 3					

Initial report from: 03/12/2026 12:11:24



# EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250  
Tel/Fax: (317) 803-2997 / (317) 803-3047  
<http://www.EMSL.com> / [indianapolislab@emsl.com](mailto:indianapolislab@emsl.com)

EMSL Order: 162602906  
Customer ID: ACON77  
Customer PO:  
Project ID:

## Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
CAS-8  162602906-0008	SOUTHEAST PIPING JOINT AST PIPING JOINTS - WHITE PIPE SEALANT	Brown/White/Green Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
			HA: 3		
CAS-9  162602906-0009	SOUTHWEST PIPING JOINT AST PIPING JOINTS - WHITE PIPE SEALANT	Brown/Gray/Green Fibrous Homogeneous	30% Cellulose	70% Non-fibrous (Other)	None Detected
			HA: 3		

Analyst(s) \_\_\_\_\_

Ross Matlock (3)  
Sean O'Donnell (6)

Asbestos Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This 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. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262, A2LA Accredited - Certificate #2845.25

Initial report from: 03/12/2026 12:11:24



Asbestos Bulk Sample and Chain of Custody Form

Lab Order ID: emsl [signature]
Select a Laboratory:

Lab Location: Charlotte, NC 200841-0

Cedar Rapids: 2640 12th St., SW, Cedar Rapids, IA 52404 (319) 366 8321

Page \_\_\_ of \_\_\_

Project Name: MPCF Diesel Tanks
Project Address: 1200 E Washington Street

Project Number: 06267019
City/State / Zip: Mount Pleasant, Iowa 52641

Project Manager: Cade Lisk
Email Results To: Cade.Lisk@terracon.com

Table with 7 columns: Sample Identification (HA, BS Code, Sample #), Sample Location Description, HA General Location, Material Description (Type, Color/Texture), Quantity (SF, LF, Cubic Ft, Units), NESHAP Classification, Notes/Physical Condition. Contains 9 rows of handwritten data.

Sampling Date: 3/3/26
Collected by (print): Cade J. Lisk
Inspector's Signature: [signature]
Relinquished by: Cade Lisk
Date/Time: 3/3/26 11:50
Received by: [signature]
Date/Time: 3/4/26 10:41A
Analysis: PLM EPA 600/R-93/116 [checked] PLM 400 Point Count [ ] TEM [ ] Other [ ]
Turnaround Time (circle): 6 Hrs 24 Hrs 2 Days 3 Days 5 Days Other [ ]
Instructions: Terracon ARMS: [ ] Stop Positive: [ ] Number of samples: [ ]

1 F = Friable; C1 = Category I: packings, gaskets, asphaltic roofing products, resilient flooring; C2 = Category II Non-Friable: any materials other than Cat. I containing >1% asbestos
2 G = Good (<1%); D = Damaged (<10% distributed or >25% localized); or SD = Significantly Damaged (>10% distributed or >25% localized)

OrderID: 162602906

Page 1 of 1

**EMSL Analytical, Inc.**

6340 Castleplace Drive, Indianapolis, IN, 46250  
 Telephone: 317.803.2997 Fax:317.803.3047  
 www.emsl.com

**EMSL Order ID:** 162651989  
**LIMS Reference ID:** CE51989  
**EMSL Customer ID:** TCCF25

**Attention:** Rob Bergman  
 Terracon Consultants, Inc. [TCCF25]  
 3105 Capital Way, Suite 5  
 Cedar Falls, IA 50613  
 (319) 277-4016  
 rpbergman@terracon.com

**Project Name:** 06267019  
  
**Customer PO:** 06267019  
**EMSL Sales Rep:** Jason McDonald  
**Received:** 03/04/2026 10:41  
**Reported:** 03/11/2026 09:28

**Analytical Results**

Analyte	Results	RL	Weight	Prep Date & Tech	Prep Method	Analysis Date & Analyst	Analytical Method	Q	DF
<b>Client Sample ID: PS-1/SE Corner of SAST</b>						<b>Date Sampled: 03/03/26</b>			
<b>Matrix: Chips</b>						<b>LIMS Reference ID: CE51989-01</b>			
Lead	0.048 % wt	0.0064 % wt	0.2533 g	03/06/26 DCC	SW-846 3050B	03/06/26 CG	SW 846-7000B	1	
<b>Client Sample ID: PS-2/SE Tank Saddle</b>						<b>Date Sampled: 03/03/26</b>			
<b>Matrix: Chips</b>						<b>LIMS Reference ID: CE51989-02</b>			
Lead	<0.0064 % wt	0.0064 % wt	0.2509 g	03/06/26 DCC	SW-846 3050B	03/06/26 CG	SW 846-7000B	1	
<b>Client Sample ID: PS-3/Railing on Top Platform</b>						<b>Date Sampled: 03/03/26</b>			
<b>Matrix: Chips</b>						<b>LIMS Reference ID: CE51989-03</b>			
Lead	0.29 % wt	0.0064 % wt	0.2506 g	03/06/26 DCC	SW-846 3050B	03/06/26 CG	SW 846-7000B	1	

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**Received:** 03/04/2026 10:41  
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**Certified Analyses included in this Report**

Analyte	Certifications
<b>SW 846-7000B in Chips</b>	
Lead	16-OHDOH,16-AIHA ELLAP

**List of Certifications**

Code	Description	Number	Expires
16-MO	Missouri Drinking Water	10180	03/31/2026
16-NYDOH	New York Potable Water, Metals Solid and Hazardous Waste - Asbestos	12130	04/01/2026
16-AIHA ELLAP	American Industrial Hygiene Association (AIHA LAP, LLC) - ELLAP	157245	08/01/2027
16-AIHA IHLAP	American Industrial Hygiene Association (AIHA LAP, LLC) - IHLAP	157245	08/01/2027
16-CA ELAP	California Metals in DW, Chemistry and Bulk Asbestos in Hazardous Waste	2575	06/30/2026
16-A2LA Food	A2LA Food Microbiology	2845.11	01/31/2028
16-A2LA Chemistry	A2LA Environmental and Chemistry	2845.25	01/31/2028
16-IN Metals/Asbestos	Indiana Lead and Metals and Asbestos in Drinking Water	C-49-09	12/31/2026
16-OHDOH	Ohio - Lead in Paint Chips, Wipes, Soil and Air	E10040	05/03/2026
16-FLDOH	Florida Asbestos and Metals in Drinking Water, PCBs	E871170	06/30/2026
16-NJDEP	New Jersey Metals, Organics and Inorganics in DW PCBs	IN002	06/30/2026
16-IN Colilert/HPC	Indiana Colilert and HPC	M-49-06	12/31/2026

Please see the specific Field of Testing (FOT) on [www.emsl.com](http://www.emsl.com) for a complete listing of parameters for which EMSL is certified.

**Notes and Definitions**

Item	Definition
(Dig)	For metals analysis, sample was digested.
[2C]	Reported from the second channel in dual column analysis.
DA	Direct Analysis
DF	Dilution Factor
MDL	Method Detection Limit.
ND	Analyte was NOT DETECTED at or above the reporting limit, or the mdl if provided.
NR	Spike/Surrogate showed no recovery.
Q	Qualifier
RCS	Respirable Crystalline Silica
RL	Reporting Limit
Wet	Sample is not dry weight corrected.

Measurement of uncertainty and any applicable definitions of method modifications are available upon request. Per EPA NLLAP policy, sample results are not blank corrected.



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**EMSL Order ID:** 162651989  
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**Attention:** Rob Bergman  
Terracon Consultants, Inc. [TCCF25]  
3105 Capital Way, Suite 5  
Cedar Falls, IA 50613  
(319) 277-4016  
rpbergman@terracon.com

**Project Name:** 06267019

**Customer PO:** 06267019

**EMSL Sales Rep:** Jason McDonald

**Received:** 03/04/2026 10:41

**Reported:** 03/11/2026 09:28

---

Aleks Kuchenbrod Laboratory Manager or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. QC sample results are within quality control criteria and met method specifications unless otherwise noted. All results for soil samples are reported on a dry weight basis, unless otherwise noted.

Analysis following EMSL SOP for the Determination of Environmental Lead by FLAA. The laboratory has a reporting limit of 0.0064% by wt., based upon a minimum sample weight of 0.25g submitted to the lab, and is not responsible for any result or reporting limit provided in mg/cm<sup>2</sup> since it is dependent upon an area value provided by non-lab personnel. A "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty and definitions of modifications are available upon request. Results in this report are not blank corrected unless specified.



# Lead Chain of Custody

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
10801 Southern Loop Blvd  
Pineville, North Carolina 28134

EMSL ANALYTICAL, INC.  
TESTING LABS • PRODUCTS • TRAINING

162651989

PHONE: (704) 525-2205  
EMAIL: charlottelab@emsl.com

Customer Information	Customer ID:	Billing ID:	Same as left column	
	Company Name:	Terracon Consultants, Inc.		
	Contact Name:	Cade J. Lisk		
	Street Address:	1401 Barton Lane, Suite 102		
	City, State, Zip:	Mount Pleasant, Iowa	Country:	US
	Phone:	515-557-3877		
Email(s) for Report:		cade.lisk@terracon.com		
Billing Information	Company Name:			
	Billing Contact:			
	Street Address:			
	City, State, Zip:		Country:	
	Phone:			
	Email(s) for Invoice:			

Project Information			
Project Name/No:	06267019	Purchase Order:	06267019
EMSL LIMS Project ID:	(If applicable, EMSL will provide)	US State where samples collected:	IA
		State of Connecticut (CT) must select project location:	<input type="checkbox"/> Commercial (Taxable) <input type="checkbox"/> Residential (Non-Taxable)
Sampled By Name:	Cade J. Lisk	Sampled By Signature:	<i>Cade J. Lisk</i>
			No. of Samples in Shipment: 3

Turn-Around-Time (TAT)

3 Hour  6 Hour  24 Hour  32 Hour  48 Hour  72 Hour  96 Hour  1 Week  2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. \*32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

MATRIX	METHOD	INSTRUMENT	REPORTING LIMIT	SELECTION
CHIPS <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> ppm (mg/kg) <input type="checkbox"/> mg/cm <sup>2</sup> *Reporting Limit based on a minimum 0.25g sample weight. **Not appropriate for Ceramic Tiles - XRF is recommended	SW 846-7000B	Flame Atomic Absorption	0.008% (80ppm)	<input checked="" type="checkbox"/>
	SW 846-6010D*	ICP-OES	0.0004% (4ppm)	<input type="checkbox"/>
	NIOSH 7082	Flame Atomic Absorption	4µg/filter	<input type="checkbox"/>
AIR	NIOSH 7300M / NIOSH 7303M	ICP-OES	0.5µg/filter	<input type="checkbox"/>
	NIOSH 7300M / NIOSH 7303M	ICP-MS	0.05µg/filter	<input type="checkbox"/>
WIPE <input type="checkbox"/> ASTM <input type="checkbox"/> NON-ASTM *If no box is checked, non-ASTM Wipe is assumed	SW 846-7000B	Flame Atomic Absorption	10µg/wipe	<input type="checkbox"/>
	SW 846-6010D*	ICP-OES	1.0µg/wipe	<input type="checkbox"/>
TCLP	SW 846-1311 / 7000B / SM 3111B SW 846-1311 / SW 846-6010D*	Flame Atomic Absorption ICP-OES	0.4 mg/L (ppm) 0.1 mg/L (ppm)	<input type="checkbox"/> <input type="checkbox"/>
SPLP	SW 846-1312 / 7000B / SM 3111B SW 846-1312 / SW 846-6010D*	Flame Atomic Absorption ICP-OES	0.4 mg/L (ppm) 0.1 mg/L (ppm)	<input type="checkbox"/> <input type="checkbox"/>
TTLC	22 CCR App. II, 7000B 22 CCR App. II, SW 846-6010D*	Flame Atomic Absorption ICP-OES	40mg/kg (ppm) 2mg/kg (ppm)	<input type="checkbox"/> <input type="checkbox"/>
STLC	22 CCR App. II, 7000B 22 CCR App. II, SW 846-6010D*	Flame Atomic Absorption ICP-OES	0.4 mg/L (ppm) 0.1 mg/L (ppm)	<input type="checkbox"/> <input type="checkbox"/>
Soil	SW 846-7000B SW 846-6010D*	Flame Atomic Absorption ICP-OES	40mg/kg (ppm) 2mg/kg (ppm)	<input type="checkbox"/> <input type="checkbox"/>
Wastewater	SM 3111B / SW 846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
Unpreserved <input type="checkbox"/> Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
Unpreserved <input type="checkbox"/> Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Sample Number	Sample Location	Volume / Area	Date / Time Sampled
PS-1	SE Corner of SAST	3,000 SF	3/3/26 10:00
PS-2	SE Tank Saddle	400 SF	3/3/26 10:05
PS-3	Railing on top platform	400 SF	3/3/26 10:10

Method of Shipment:	FedEx	Sample Condition Upon Receipt:	
Relinquished by:	Cade Lisk	Date/Time:	3/3/26 11:50
Relinquished by:		Date/Time:	
Received by:	<i>[Signature]</i>	Date/Time:	3/3/26 10:41A
Received by:		Date/Time:	

Controlled Document - COC-25 Lead R17 05/09/2022 \*6010C Available Upon Request

AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.



2640 12<sup>th</sup> Street SW  
Cedar Rapids, Iowa 52404  
P (319) 366-8321  
[Terracon.com](http://Terracon.com)

April 29, 2026

Iowa Department of Administrative Services  
109 East 13<sup>th</sup> Street  
Des Moines, Iowa 50319

Attn: Mr. Brandon Adams  
P (515) 201-2197  
E [Brandon.Adams@iowa.gov](mailto:Brandon.Adams@iowa.gov)

RE: Supplemental Asbestos and Lead Survey Letter Report  
9502.00 MPCF Four Diesel Tanks  
Mount Pleasant Correctional Facility (MPCF)  
1200 East Washington Street  
Mount Pleasant, Iowa, 52641  
**Terracon Project No. 06267019**

Dear Mr. Adams:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit this supplemental report to the Iowa Department of Administrative Services (DAS or the Client). This service was completed in general accordance with Terracon Task Order 2, dated April 6, 2026. On April 10, 2026, Terracon collected paint chips for analysis of lead by weight for the Mount Pleasant Correctional Facility (MPCF) above ground tanks (ASTs) project. Terracon understands that wall materials in the Powerhouse are also going to be impacted as part of the project and appears to be painted a different color than the materials sampled during our prior investigation on March 3, 2026.

Mr. Cade Lisk, of Terracon, collected two paint chip samples that were submitted to EMSL Analytical, Inc. in Indianapolis, Indiana, for analysis by SW-846 Method 700B using Flame Atomic Absorption (FAA). EMSL is accredited under the American Industrial Hygiene Association (AIHA) LAP (accreditation number 157245).

Terracon also instructed the laboratory to analyze a paint chip sample (PS-5), containing an apparent layer of skim coat, by Polarized Light Microscopy (PLM) with dispersion staining techniques per Environmental Protection Agency (EPA) methodology (40 Code of Federal Regulations [CFR] 763, Subpart F). The percentage of asbestos, where applicable, was determined by microscopic visual estimation. EMSL is a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory (NVLAP code 200188-0).

**Both of the paint chip samples contained lead above the laboratory reporting limit and contain concentrations of lead.** Paint chip sample PS-4 collected on the interior of the Powerhouse wall was reported as containing 0.0065% lead by weight and is

considered lead containing. Paint chip sample PS-5 collected on the exterior of the Powerhouse contained 1% lead by weight and is above the lead-based paint threshold (0.5% lead by weight). Table 1, attached, provides a summary of the sampled painted surface coatings; additionally, the laboratory analytical report and chain-of-custody are included as an attachment.

Asbestos was not detected in the sample (PS-5) submitted for analysis. Table 2, attached provides a summary of the sampled materials and their results. A copy of the laboratory analytical report and chain of custody (COC) is also appended. Pictures of sampled materials are attached in Photographic Documentation.

Terracon recommends that the contractor(s) involved in the renovation and or demolition activities be notified of the presence of lead on painted components. The Occupational Safety and Health Administration's (OSHA) 29 CFR 1926.62 standards apply regardless of the lead concentrations. *The levels indicated could create conditions above published occupational exposure limits. No other substances were analyzed. The contractor should not rely on this testing and analysis for any purpose other than an indication of the existence of these constituents.*

If waste materials containing lead are generated, they may be regulated as hazardous waste. Waste from demolition activities, such as debris, paint chips, dust, and sludges, which exhibit the toxicity characteristic must be managed and disposed of as hazardous waste under the Resource Conservation and Recovery Act (RCRA). A composite, representative sample of the demolition debris/waste must be tested by the Toxicity Characteristic Leaching Procedure (TCLP) to determine if it is regulated as hazardous waste under 40 CFR 261 Identification and Listing of Hazardous Waste.

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, and conclusions expressed in the report are based on conditions observed during the limited asbestos sampling event

This report has been prepared on behalf of and exclusively for use and reliance by the Iowa Department of Administrative Services. This report is not a bidding document. Contractors or consultants reviewing this survey report must draw their own conclusions regarding further investigation or abatement deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information that may have been used in the preparation of this report. No warranty, express or implied, is made.

Terracon appreciates the opportunity to continue to provide services to DAS. If you have questions regarding the content of this report, or if we can be of further assistance, please contact us at (319) 366-3821.

Sincerely,  
Terracon Consultants, Inc.

*Prepared by:*



Jack Wachowski  
Staff Industrial Hygienist

*Reviewed by:*



Eric Harris  
Authorized Project Reviewer

**Attachments:**      Table 1 – Paint Chip Sample Summary  
                              Table 2 – Asbestos Sample Summary  
                              Photographic Documentation  
                              Laboratory Analytical Reports and COCs

**Table 1 – Paint Chip Sample Summary**

Sample ID	Sample Location	Surface Coating Color	Total Lead Percentage by Weight
PS-4	Electric building, northeast corner interior	White	0.0065%
PS-5	Powerhouse, south exterior wall at entrance of piping	White	1.0%

**Table 2 – Asbestos Sample Summary**

HA #	Sample ID	Material Description	Material Location	Sample Location	Total Asbestos Percentage and Type
1	PS-5	White/brown skim coat	Exterior of Powerhouse, on CMU block	Entrance of piping to the Powerhouse	None Detected (ND)



## Photographic Documentation



Photo 1: View of PS-4 sample location, paint is 0.0065% lead by weight



Photo 2: General view of area containing paint sampled in sample PS-4



Photo 3: Sample PS-5 location, paint is 1.0% lead by weight. Sample also analyzed for asbestos, no asbestos was detected in the skim coat



Photo 2: General view of area containing paint sampled in sample PS-4



## Laboratory Analytical Results And COCs

**EMSL Analytical, Inc.**

6340 Castleplace Drive, Indianapolis, IN, 46250  
 Telephone: 317.803.2997 Fax:317.803.3047  
 www.emsl.com

**EMSL Order ID:** 162653880  
**LIMS Reference ID:** CE53880  
**EMSL Customer ID:** TCON21

**Attention:** Cade Lisk  
 Terracon Consultants, Inc. [TCON21]  
 600 SW 7th Street Ste. M  
 Des Moines, IA 50309  
 (515) 244-3184  
 Cade.Lisk@terracon.com

**Project Name:** 06267019

**Customer PO:** 06267019

**EMSL Sales Rep:** Jason McDonald

**Received:** 04/13/2026 10:18

**Reported:** 04/16/2026 15:29

**Analytical Results**

Analyte	Results	RL	Weight	Prep Date & Tech	Prep Method	Analysis Date & Analyst	Analytical Method	Q	DF
<b>Client Sample ID: PS-4/Electric BUilding, NE Corner Interior</b>						<b>Date Sampled: 04/10/26</b>			
<b>Matrix: Chips</b>						<b>LIMS Reference ID: CE53880-01</b>			
Lead	0.0065 % wt	0.0064 % wt	0.258 g	04/14/26 DCC	SW-846 3050B	04/14/26 CG	SW 846-7000B Pb2	1	
<b>Client Sample ID: PS-5/Powerhouse, S Exterior Wall at Entrance of Piping</b>						<b>Date Sampled: 04/10/26</b>			
<b>Matrix: Chips</b>						<b>LIMS Reference ID: CE53880-02</b>			
Lead	1.0 % wt	0.062 % wt	0.2577 g	04/14/26 DCC	SW-846 3050B	04/14/26 CG	SW 846-7000B Pb2	10	

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**Received:** 04/13/2026 10:18  
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**Certified Analyses included in this Report**

Analyte	Certifications
<b>SW 846-7000B in Chips</b>	
Lead	16-OHDOH,16-AIHA ELLAP

**List of Certifications**

Code	Description	Number	Expires
16-MO	Missouri Drinking Water	10180	03/31/2029
16-NYDOH	New York Potable Water, Metals Solid and Hazardous Waste - Asbestos	12130	04/01/2026
16-AIHA ELLAP	American Industrial Hygiene Association (AIHA LAP, LLC) - ELLAP	157245	08/01/2027
16-AIHA IHLAP	American Industrial Hygiene Association (AIHA LAP, LLC) - IHLAP	157245	08/01/2027
16-CA ELAP	California Metals in DW, Chemistry and Bulk Asbestos in Hazardous Waste	2575	06/30/2026
16-A2LA Food	A2LA Food Microbiology	2845.11	01/31/2028
16-A2LA Chemistry	A2LA Environmental and Chemistry	2845.25	01/31/2028
16-IN Metals/Asbestos	Indiana Lead and Metals and Asbestos in Drinking Water	C-49-09	12/31/2026
16-OHDOH	Ohio - Lead in Paint Chips, Wipes, Soil and Air	E10040	05/03/2026
16-FLDOH	Florida Asbestos and Metals in Drinking Water, PCBs	E871170	06/30/2026
16-NJDEP	New Jersey Metals, Organics and Inorganics in DW PCBs	IN002	06/30/2026
16-IN Colilert/HPC	Indiana Colilert and HPC	M-49-06	12/31/2026

Please see the specific Field of Testing (FOT) on [www.emsl.com](http://www.emsl.com) for a complete listing of parameters for which EMSL is certified.

**Notes and Definitions**

Item	Definition
Pb2	The MS recovery for Lead was outside of the method control limits due to matrix bias.
(Dig)	For metals analysis, sample was digested.
[2C]	Reported from the second channel in dual column analysis.
DA	Direct Analysis
DF	Dilution Factor
MDL	Method Detection Limit.
ND	Analyte was NOT DETECTED at or above the reporting limit, or the mdl if provided.
NR	Spike/Surrogate showed no recovery.
Q	Qualifier
RCS	Respirable Crystalline Silica
RL	Reporting Limit
Wet	Sample is not dry weight corrected.

Measurement of uncertainty and any applicable definitions of method modifications are available upon request. Per EPA NLLAP policy, sample results are not blank corrected.



**EMSL Analytical, Inc.**

6340 Castleplace Drive, Indianapolis, IN, 46250  
Telephone: 317.803.2997 Fax:317.803.3047  
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**Attention:** Cade Lisk  
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600 SW 7th StreetSte. M  
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**EMSL Sales Rep:** Jason McDonald

**Received:** 04/13/2026 10:18

**Reported:** 04/16/2026 15:29

---

Aleks Kuchenbrod Laboratory Manager or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. QC sample results are within quality control criteria and met method specifications unless otherwise noted. All results for soil samples are reported on a dry weight basis, unless otherwise noted.

Analysis following EMSL SOP for the Determination of Environmental Lead by FLAA. The laboratory has a reporting limit of 0.0064% by wt., based upon a minimum sample weight of 0.25g submitted to the lab, and is not responsible for any result or reporting limit provided in mg/cm<sup>2</sup> since it is dependent upon an area value provided by non-lab personnel. A "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty and definitions of modifications are available upon request. Results in this report are not blank corrected unless specified.



# Lead Chain of Custody

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
10801 Southern Loop Blvd  
Pineville, North Carolina 28134

EMSL ANALYTICAL, INC.  
TESTING LABS • PRODUCTS • TRAINING

PHONE: (704) 525-2205  
EMAIL: charlottelab@emsl.com

<b>Customer Information</b>	Customer ID:		Billing ID: <b>Same as left column</b>	
	Company Name: <b>Terracon Consultants, Inc.</b>		Company Name:	
	Contact Name: <b>Cade J. Lisk</b>		Billing Contact:	
	Street Address: <b>1401 Barton Lane, Suite 102</b>		Street Address:	
	City, State, Zip: <b>Mount Pleasant, Iowa</b>	Country: <b>US</b>	City, State, Zip:	Country:
	Phone: <b>515-557-3877</b>		Phone:	
Email(s) for Report: <b>cade.lisk@terracon.com</b>		Email(s) for Invoice:		

**Project Information**

Project Name/No: <b>06267019</b>		Purchase Order: <b>06267019</b>	
EMSL LIMS Project ID: (If applicable, EMSL will provide)		US State where samples collected: <b>IA</b>	State of Connecticut (CT) must select project location: <input type="checkbox"/> Commercial (Taxable) <input type="checkbox"/> Residential (Non-Taxable)
Sampled By Name: <b>Cade J. Lisk</b>	Sampled By Signature: <i>Cade J. Lisk</i>		No. of Samples in Shipment: <b>2</b>

**Turn-Around-Time (TAT)**

3 Hour  
  6 Hour  
  24 Hour  
  32 Hour  
  48 Hour  
  72 Hour  
  96 Hour  
 1 Week  
 2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. \*32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

MATRIX	METHOD	INSTRUMENT	REPORTING LIMIT	SELECTION
<b>CHIPS</b> <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> ppm (mg/kg) <input type="checkbox"/> mg/cm <sup>2</sup> <small>*Reporting Limit based on a minimum 0.25g sample weight. **Not appropriate for Ceramic Tiles - XRF is recommended</small>	SW 846-7000B	Flame Atomic Absorption	0.008% (80ppm)	<input checked="" type="checkbox"/>
	SW 846-6010D*	ICP-OES	0.0004% (4ppm)	<input type="checkbox"/>
	NIOSH 7082	Flame Atomic Absorption	4µg/filter	<input type="checkbox"/>
<b>AIR</b>	NIOSH 7300M / NIOSH 7303M	ICP-OES	0.5µg/filter	<input type="checkbox"/>
	NIOSH 7300M / NIOSH 7303M	ICP-MS	0.05µg/filter	<input type="checkbox"/>
<b>WIPE</b> <input type="checkbox"/> ASTM <input type="checkbox"/> NON-ASTM <small>*If no box is checked, non-ASTM Wipe is assumed</small>	SW 846-7000B	Flame Atomic Absorption	10µg/wipe	<input type="checkbox"/>
	SW 846-6010D*	ICP-OES	1.0µg/wipe	<input type="checkbox"/>
<b>TCLP</b>	SW 846-1311 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW 846-1311 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
<b>SPLP</b>	SW 846-1312 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW 846-1312 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
<b>TTLIC</b>	22 CCR App. II, 7000B	Flame Atomic Absorption	40mg/kg (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW 846-6010D*	ICP-OES	2mg/kg (ppm)	<input type="checkbox"/>
<b>STLC</b>	22 CCR App. II, 7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
<b>Soil</b>	SW 846-7000B	Flame Atomic Absorption	40mg/kg (ppm)	<input type="checkbox"/>
	SW 846-6010D*	ICP-OES	2mg/kg (ppm)	<input type="checkbox"/>
	SM 3111B / SW 846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
<b>Wastewater</b> Unpreserved <input type="checkbox"/> Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
<b>Drinking Water</b> Unpreserved <input type="checkbox"/> Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
				<input type="checkbox"/>
<b>TSP/SPM Filter</b>	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
<b>Other:</b>				<input type="checkbox"/>

Sample Number	Sample Location	Volume / Area	Date / Time Sampled
PS-4	Electric Building, NE Corner Interior	-	4/10/26 8:20 AM
PS-5	Powerhouse, S Exterior Wall at entrance of piping	-	4/10/26 8:20 AM

Method of Shipment: <b>FedEx</b>		Sample Condition Upon Receipt:	
Relinquished by: <b>Cade Lisk</b> <i>Cade J. Lisk</i>	Date/Time: <b>4/10/26 12:45</b>	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:

Controlled Document - COC-25 Lead R17 05/09/2022 \*6010C Available Upon Request

**AGREE TO ELECTRONIC SIGNATURE** (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.



# EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250  
Tel/Fax: (317) 803-2997 / (317) 803-3047  
<http://www.EMSL.com> / [indianapolislab@emsl.com](mailto:indianapolislab@emsl.com)

**EMSL Order:** 162605159  
**Customer ID:** TCON21  
**Customer PO:**  
**Project ID:**

**Attention:** Jack Wachowski  
Terracon Consultants, Inc.  
600 SW 7th Street  
Des Moines, IA 50309

**Phone:** (515) 244-3184  
**Fax:** (515) 244-5249  
**Received Date:** 04/29/2026 10:10 AM  
**Analysis Date:** 04/29/2026  
**Collected Date:**

**Project:** 06267019

## Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
PS-5  162605159-0001	POWERHOUSE, S EXTERIOR WALL AT ENTRANCE OF PIPING	Brown/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)  
Sean O'Donnell (1)

Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This 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. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262, A2LA Accredited - Certificate #2845.25

Initial report from: 04/29/2026 12:47:35



**Lead Chain of Custody**

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.  
 10801 Southern Loop Blvd  
 Pineville, North Carolina 28134

162653880

PHONE: (704) 525-2205  
 EMAIL: charlottelab@emsl.com

EMSL ANALYTICAL INC.  
 TESTING LABS • PRODUCTS • TRAINING

Customer ID		Billing ID: Same as left column	
Company Name: Terracon Consultants, Inc.		Company Name:	
Contact Name: Cade J. Lisk		Billing Contact:	
Street Address: 1401 Barton Lane, Suite 102		Street Address:	
City, State, Zip: Mount Pleasant, Iowa	Country: US	City, State, Zip:	Country:
Phone: 515-557-3877		Phone:	
Email(s) for Report: cade.lisk@terracon.com		Email(s) for Invoice:	

Project Name/No: 06267019		Purchase Order: 06267019	
EMSL LIMS Project ID (if applicable, EMSL will provide)	US State where samples collected: IA	State of Connecticut (CT) must select project location: <input type="checkbox"/> Commercial (Taxable) <input type="checkbox"/> Residential (Non-Taxable)	
Sampled By Name: Cade J. Lisk	Sampled By Signature: <i>Cade J. Lisk</i>	No. of Samples in Shipment: 2	

Turn-Around-Time (TAT)

3 Hour  
  6 Hour  
  24 Hour  
  32 Hour  
  48 Hour  
  72 Hour  
  96 Hour  
  1 Week  
  2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. \*32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

MATRIX	METHOD	INSTRUMENT	REPORTING LIMIT	SELECTION
CHIPS <input checked="" type="checkbox"/> by wt. <input type="checkbox"/> ppm (mg/lst) <input type="checkbox"/> mg/lst <small>*Reporting Limit based on a minimum 0.25g sample weight.                      **Not appropriate for Ceramic Tiles - XRF is recommended</small>	SW 846-7000B	Flame Atomic Absorption	0.008% (80ppm)	<input checked="" type="checkbox"/>
	SW 846-6010D*	ICP-OES	0.0004% (4ppm)	<input type="checkbox"/>
	NIOSH 7082	Flame Atomic Absorption	4µg/filter	<input type="checkbox"/>
AIR	NIOSH 7300M / NIOSH 7303M	ICP-OES	0.5µg/filter	<input type="checkbox"/>
	NIOSH 7300M / NIOSH 7303M	ICP-MS	0.05µg/filter	<input type="checkbox"/>
	SW 846-7000B	Flame Atomic Absorption	10µg/wipe	<input type="checkbox"/>
W/PE <input type="checkbox"/> ASTM <input type="checkbox"/> NON-ASTM <small>*If no box is checked, non-ASTM W/pe is assumed</small>	SW 846-6010D*	ICP-OES	1.0µg/wipe	<input type="checkbox"/>
	SW 846-1311 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
TCLP	SW 846-1311 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
	SW 846-1312 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
SPLP	SW 846-1312 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
	22 CCR App. II, 7000B	Flame Atomic Absorption	40mg/kg (ppm)	<input type="checkbox"/>
TTLC	22 CCR App. II, SW 846-6010D*	ICP-OES	2mg/kg (ppm)	<input type="checkbox"/>
	22 CCR App. II, 7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
STLC	22 CCR App. II, SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
	SW 846-7000B	Flame Atomic Absorption	40mg/kg (ppm)	<input type="checkbox"/>
Soil	SW 846-6010D*	ICP-OES	2mg/kg (ppm)	<input type="checkbox"/>
	SM 3111B / SW 846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
Wastewater Unpreserved <input type="checkbox"/> PH<2 Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
Drinking Water Unpreserved <input type="checkbox"/> PH<2 Preserved with HNO3 <input type="checkbox"/> PH<2	EPA 200.6	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
Other:				<input type="checkbox"/>

Sample Number	Sample Location	Volume / Area	Date / Time Sampled
PS-4	Electric Building, NE Corner Interior	-	4/10/26 8:20 AM
PS-5	Powerhouse, S Exterior Wall at entrance of piping	-	4/10/26 8:20 AM

Method of Shipment: FedEx		Sample Condition Upon Receipt:	
Relinquished by: Cade Lisk <i>Cade J. Lisk</i>	Date/Time: 4/10/26 12:45 PM	Received by: <i>Chad's Byrd</i>	Date/Time: 4/13/26
Relinquished by:	Date/Time:	Received by:	Date/Time: <i>BRD</i>

Controlled Document - COC-25 Lead R17 09092022 \*6010G Available Upon Request

AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 1 of 2

**Romanovich, Emily**

---

**From:** Wachowski, Jack <Jack.Wachowski@terracon.com>  
**Sent:** Wednesday, April 29, 2026 11:35 AM  
**To:** Romanovich, Emily  
**Cc:** Green, Daniel M.; Harris, Eric W.; Mack, Steve M; Lisk, Cade; Davis, Alex J  
**Subject:** EMSL Order ID: 162653880 Analysis Authorization

[EXTERNAL E-MAIL]

Hello,

Please analyze sample PS-5 (LIMS Reference ID: CE5388-02) for Project name: 06267019 (EMSL Order ID: 162653880) for asbestos by PLM on a 3-hour turnaround time.

Thank you!

Jack Wachowski, MS  
Staff Industrial Hygienist | Environmental Service Line



2640 12<sup>th</sup> Street | Cedar Rapids, IA 52404  
D (319) 221-7327 | M (331) 243-7997  
Jack.Wachowski@terracon.com | Terracon.com



Terracon provides environmental, facilities, geotechnical, and materials consulting engineering services delivered with responsiveness, resourcefulness, and reliability.

---

*Private and confidential as detailed here ([www.terracon.com/disclaimer](http://www.terracon.com/disclaimer)). If you cannot access the hyperlink, please e-mail sender.*

**SECTION 00 3132**

**GEOTECHNICAL DATA**

**PART 1 - GENERAL**

**1.01 GEOTECHNICAL DATA**

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions.
  
- B. A geotechnical investigation report for Project, titled MPCF Above Ground Tank, prepared by Terracon, dated April 9<sup>th</sup>, 2026, is available for viewing as appended to this Document.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

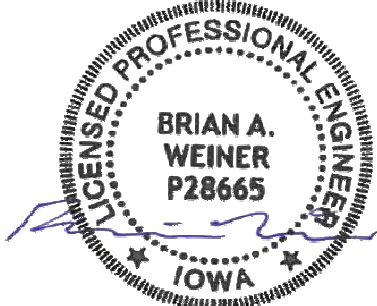
# MPCF Above Ground Tank Geotechnical Engineering Report

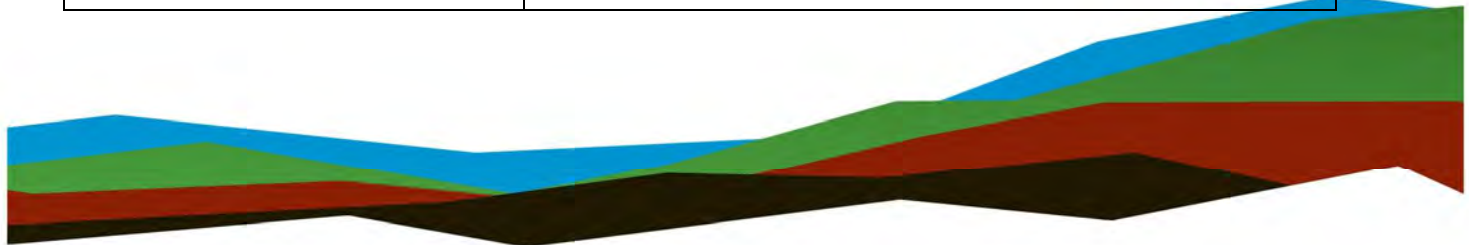
Mount Pleasant, Iowa

April 9, 2026 | Terracon Project No. 06265018-01

**Prepared for:**

State of Iowa – Department of  
Administrative Services  
109 SE 13th Street  
Des Moines, Iowa 50319

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p><i>Brian Weiner</i></p> <p>4/9/2026</p> <p>Brian A. Weiner, P.E. Date</p> <p>License Number P28665</p> <p>My license renewal date is December 31, 2027.</p> <p>Pages or sheets covered by this seal: <u>All pages</u> .</p>
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600 SW 7<sup>th</sup> Street, Suite M  
Des Moines, IA 50309  
P (515) 244-3184  
**Terracon.com**

April 9, 2026

State of Iowa – Department of Administrative Services  
109 SE 13th Street  
Des Moines, Iowa 50319

Attn.: Brandon Adams  
P: (515) 201-2197  
E: brandon.adams@iowa.gov

Re: Geotechnical Engineering Report  
MPCF Above Ground Tank  
1200 E Washington Street  
Mount Pleasant, Iowa  
Terracon Project No. 06265018-01

Dear Brandon Adams:

We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. P06265018rev01 dated February 18, 2026. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

**Terracon**

A handwritten signature in black ink that reads 'Brian Weiner'.

Brian A. Weiner, P.E.  
Project Engineer

A handwritten signature in blue ink that reads 'Theodore Bechtum'.

Theodore D. Bechtum, P.E.  
Department Manager

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## Attachments

**Exploration and Testing Procedures**

**Site Location and Exploration Plan**

**Exploration and Laboratory Results**

**Supporting Information**

**Note:** This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the  logo will bring you back to this page. For more interactive features, please view your project online at [client.terracon.com](http://client.terracon.com).

Refer to each individual Attachment for a listing of contents.

## Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed above ground tank to be located at 1200 E Washington Street in Mount Pleasant, Iowa. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Subsurface water conditions
- Site preparation and earthwork
- Foundation design and construction

The geotechnical engineering Scope of Services for this project included the advancement of 2 test borings, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site and exploration locations are shown on the [Site Location](#) and [Exploration Plan](#), respectively. Results of the laboratory testing performed on samples obtained from the site during our field exploration are included on the boring logs in [Exploration and Laboratory Results](#).

## Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. Our final understanding of the project conditions is as follows:

Item	Description
<b>Project Description</b>	IDAS is working with McGough to construct a new above-ground tank. While 2 tanks were originally considered for the site, we understand that a single tank is now planned.
<b>Proposed Structure</b>	The new tank is anticipated to be placed horizontally and be supported on a mat foundation.
<b>Maximum Loads</b>	We used the following loads in estimating settlement based on our experience with similar projects. <ul style="list-style-type: none"><li>■ Slabs: 1,000 pounds per square foot (psf)</li></ul>
<b>Grading/Slopes</b>	Grades are anticipated to remain relatively unchanged with cuts and fills of less than 2 feet anticipated.

Item	Description
<b>Below-Grade Structures</b>	None anticipated

## Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration.

Item	Description
<b>Parcel Information</b>	The project is located at 1200 E Washington Street in Mount Pleasant, Iowa. Latitude/Longitude (approximate): 40.9533°, -91.5359° See <a href="#">Site Location</a>
<b>Existing Improvements</b>	To the north of the site there is a laydown/storage yard with a pre-engineered metal building.
<b>Current Ground Cover</b>	Grass covered around the existing above-ground tanks
<b>Existing Topography</b>	Relatively flat

## Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based on our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical evaluation. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in [Exploration and Laboratory Results](#) and the GeoModel can be found in [Figures](#).

As part of our review, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
<b>1</b>	<b>Existing Fill</b>	Consists of lean clay with trace sand and gravel. Concrete rubble encountered in boring 2

Model Layer	Layer Name	General Description
2	Upper Clay	Lean clay and lean to fat clay. Generally stiff in consistency.
3	Lower Clay	Lean clay, trace sand. Generally stiff to very stiff in consistency.

Mapping by the Natural Resources Conservation Service (NRCS) indicates the following soil units at this site:

Soil Unit	Map Unit Symbol	Drainage Class	Depth to Water Table (inches)
Pershing Silt Loam	131B	Somewhat poorly drained	11 to 20
Pershing Silty Clay Loam	731C2	Somewhat poorly drained	12 to 16



**Source:** <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

Boreholes were observed while drilling for the presence and level of subsurface water, but water was not observed in the boreholes at the time of drilling. Mapping by the Natural Resources Conservation Service (NRCS) indicates a seasonal high groundwater level within 11 inches of the native ground surface. Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at

the time of drilling. Subsurface water conditions may be different at the time of construction. Long-term groundwater monitoring was outside the Scope of Services for this project.

## Geotechnical Overview

Existing fill was encountered in the planned tank area to depths of about 3½ feet below existing grades. Beneath the existing fill, the native clays are generally stiff to very stiff.

We anticipate excavations for the tank foundation will extend to frost depth and bear in native clay soils. If deeper fill is encountered during excavation of the foundation, then overexcavation of the existing fill and replacement with newly placed structural fill would be required.

The recommendations contained in this report are based on the results of field and laboratory testing (presented in **Exploration and Laboratory Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

## Earthwork

Earthwork is anticipated to include removal of the existing tanks, clearing and grubbing, excavations, and structural fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations.

### Demolition

Existing utilities should be rerouted around areas of new construction. The trench backfill and bedding materials of any rerouted utilities should also be removed and replaced with newly placed structural fill. Sloping or benching of the sides of these excavations may be needed to accommodate proper placement of new structural fill.

Demolition of existing utilities and structures should be performed with close construction observation and testing. Any demolition debris should be removed. The demolition Contractor should be aware of project requirements for earthwork (e.g., structural fill placement and compaction recommendations given in this report) so that reworking fill materials placed by demolition Contractor is not necessary prior to construction of new structures. Demolition activities should be observed by Terracon.

## Site Preparation

Prior to placing fill, existing vegetation, topsoil, and root mats should be removed. Complete stripping of the topsoil should be performed across proposed construction areas.

If unexpected fills or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

## Subgrade Preparation

We recommend the exposed subgrade be proofrolled and probed/evaluated to help delineate soft, disturbed, or low-density fill zones along the project alignment. Proofrolling should be accomplished using approved equipment. Unstable areas observed at this time should be undercut to expose stable material and backfilled with low plasticity structural fill, or stabilized as described below.

Following proofrolling, and any additional undercutting, the exposed subgrade should be scarified to a depth of 9 inches, moisture conditioned, and compacted to the density and water content ranges recommended for structural fill.

## Soil Stabilization

Methods of subgrade improvement, as described below, could include scarification, moisture conditioning and compaction and removal of unstable materials and replacement with granular fill (with or without geosynthetics). The appropriate method of improvement, if required, would be dependent on factors such as schedule, weather, the size and depth of area to be stabilized, and the nature of the instability. More detailed recommendations can be provided during construction as the need for subgrade stabilization occurs. Performing site grading operations during warm seasons and dry periods would help reduce the quantity of subgrade stabilization required, which could include one of the methods outlines below.

- **Scarification and Compaction** - It may be feasible to scarify, moisture condition, and compact the exposed soils. The success of this procedure would depend primarily on favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot, if the unstable soil is at or near groundwater levels, or if construction is performed during a period of wet or cool weather when drying is difficult.
- **Granular Layer** - The use of crushed stone or crushed concrete could be considered to improve subgrade stability. To limit depths of potential undercuts,

the use of a geogrid could also be considered after underground work, such as utility construction, is completed. Equipment should not be operated above the geogrid until one full lift of granular fill is placed above the geogrid. The specifications of the reinforcement product manufacturer should be verified prior to material purchase/delivery and placement at the site.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

### Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 10 feet of structures, pavements, or constructed slopes. General fill is material used to achieve grade outside of these areas.

**Reuse of On-Site Soil:** Excavated on-site soils may be selectively reused as structural fill, provided the material meets the requirements outlined in this report. A sample of each material type should be submitted to Terracon for evaluation prior to use on this site.

Fine grained materials (e.g., clays) can be difficult to compact in relatively small areas, and we recommend fine-grained materials are only used where placed with proper equipment during mass grading or in broad excavations.

Moisture conditioning (e.g., wetting or drying) will be necessary to achieve compaction requirements, especially where fine grained materials are used as structural fill.

**Fill Material Properties:** Fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. Material property requirements for structural fill and general fill are noted in the following tables.

Property	Structural Fill	General Fill
Composition	Free of deleterious material	Free of deleterious material
Maximum particle size	3 inches	6 inches (or 2/3 of the lift thickness)
Plasticity	Liquid limit of 45 or less and plasticity index of 23 or less (ASTM D4318)	Not limited

Property	Structural Fill	General Fill
GeoModel Layer(s) Expected to be Suitable <sup>1</sup>	1, Portions of 2, 3	1, 2, 3

1. Based on the materials encountered in the borings. Actual material suitability should be determined in the field at time of construction.
2. We anticipate portions of layer 2 will have moderate to high plasticity that does not meet the requirements of the table, and the properties should be closely evaluated prior to use.

Soil Type <sup>1</sup>	USCS Classification	Acceptable Placement (for Structural Fill)
On-site/Imported Low Plasticity Cohesive <sup>2</sup>	CL	General site grading fill
On-site Moderate to High Plasticity Cohesive <sup>2, 3</sup>	CL/CH, CH	General site grading fill limited to areas located more than 2 feet below final slab elevations.
Imported Granular	GW, GP, GM, GC, SW, SP, SM, SC	Specific material requirements will need to be satisfied based on the intended use

1. Structural and general fill should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to Terracon for evaluation prior to use on this site.
2. By our definition, low plasticity materials should have a liquid limit of 45 or less and a plasticity index of 23 or less (ASTM D4318).
3. Recommendations for moderate to high plasticity cohesive fill apply to on-site material only. Import of moderate to high plasticity cohesive fill is not recommended.

## Fill Placement and Compaction Requirements

Structural and general fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
<b>Maximum Lift Thickness</b>	9 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 inches in loose thickness when hand-guided equipment (i.e., jumping jack or plate compactor) is used	Same as structural fill
<b>Minimum Compaction Requirements</b> <sup>1,2,3</sup>	Cohesive: 95% of maximum Granular: 98% of maximum	92% of maximum
<b>Water Content Range</b> <sup>1</sup>	Low plasticity cohesive: -2% to +3% of optimum Moderate to high plasticity cohesive: 0 to +4% of optimum Granular: -3% to +3% of optimum	As required to achieve minimum compaction requirements

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D698).
2. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D4253 and D4254). Materials not amenable to density testing should be placed and compacted to a stable condition while being observed by Terracon.
3. Moderate to high plasticity cohesive fill should not be compacted to more than 100% of standard Proctor maximum dry density

### Utility Trench Backfill

All trench excavations should be made with sufficient working space to permit construction, including backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they should be capped with at least 18 inches of cohesive fill in non-pavement areas to reduce the infiltration and conveyance of surface water through the trench backfill.

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with structural fill or bedding material in accordance with public works specifications for the utility being supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 (horizontal to

vertical) projection from existing foundations without engineering review of shoring requirements and geotechnical observation during construction.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Flooding or jetting for placement and compaction of backfill is not recommended.

Utility trenches are a common source of water infiltration and migration. Utility trenches constructed in cohesive soils that penetrate beneath the building should be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the building. The trench should provide an effective trench plug that extends at least 5 feet out from the face of the building exterior. The plug material should consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted as recommended in this report. Care should be taken to not damage the in place utility.

## Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks.

Exposed ground should be sloped and maintained at a minimum 5% away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure's maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

## Earthwork Construction Considerations

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of grade-supported improvements such as slabs on grade. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of

surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and compacted prior to construction.

The groundwater table could affect over-excavation efforts, especially for overexcavation and replacement of lower strength soils. The contractor is responsible for employing appropriate dewatering methods to control seepage and facilitate construction. In our experience, dewatering of isolated excavations in clay soils can typically be accomplished using sump pits and pumps; however, more extensive dewatering systems will be required where excavations extend below seasonal groundwater levels and/or into sands.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendixes, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the Contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the Contractor's activities; such responsibility shall neither be implied nor inferred.

Excavations or other activities resulting in ground disturbance have the potential to affect adjoining properties and structures. Our Scope of Services does not include review of available final grading information or consider potential temporary grading performed by the Contractor for potential effects such as ground movement beyond the project limits. A preconstruction/ precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent or near property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

## Construction Observation and Testing

The earthwork efforts should be observed by Terracon during construction. Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil), removal of existing fill materials, delineation of areas requiring subgrade stabilization, as well as proofrolling.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by Terracon prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a standard frequency.

In areas of foundation excavations, the bearing subgrade should be evaluated by Terracon. If unanticipated conditions are observed, Terracon should be given the opportunity to recommend mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of Terracon’s involvement during the construction phase of the project provides the continuity to maintain the Geotechnical Engineer’s evaluation of subsurface conditions, including assessing variations and associated design changes.

## Shallow Foundations

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

### Design Parameters – Compressive Loads

Item	Description
<b>Maximum Net Allowable Bearing Pressure</b> <sup>1, 2</sup>	1,000 psf
<b>Required Bearing Stratum</b> <sup>3</sup>	Native, stiff clay soils
<b>Minimum Foundation Dimensions</b>	Per IBC 1809.7
<b>Ultimate Passive Resistance</b> <sup>4</sup> (equivalent fluid pressures)	295 pcf (cohesive backfill) 360 pcf (granular backfill)
<b>Ultimate Coefficient of Sliding Friction</b> <sup>5</sup>	0.3 for suitable bearing material
<b>Minimum Embedment below Finished Grade</b> <sup>6</sup>	Exterior footings: 42 inches
<b>Estimated Total Settlement from Structural Loads</b> <sup>2</sup>	Less than about 1 inch (for a mat with dimensions of 14 feet by 28 feet)
<b>Estimated Differential Settlement</b> <sup>2, 7</sup>	About 2/3 of total settlement

Item	Description
1.	The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Values consider that exterior grades are no steeper than 20% within 10 feet of structure.
2.	Values provided are for maximum loads noted in <b>Project Description</b> . Additional geotechnical consultation will be necessary if higher loads are anticipated.
3.	Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in <b>Earthwork</b> .
4.	Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be nearly vertical and the concrete placed neat against these vertical faces or that footing forms be removed and compacted structural fill be placed against the vertical footing face. Does not consider hydrostatic pressure.
5.	Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Frictional resistance for granular materials is dependent on the bearing pressure which may vary due to load combinations. For cohesive materials, lateral resistance using cohesion should not exceed ½ the dead load.
6.	Embedment necessary to reduce the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
7.	Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.

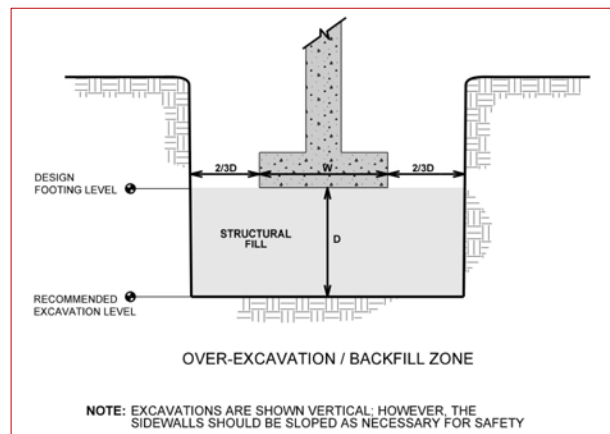
Structural mats that support concentrated point or limited area equipment/vessel loads distribute those loads over a subgrade area defined by the mat stiffness and the subgrade modulus. The magnitude and distribution of mat bearing pressure is typically modeled by the structural engineer using a structural mat design program. Without this detailed information, the mat pressure should be assumed to entail the maximum anticipated mat pressure over the entire mat area. If more detailed information becomes available for a structural mat computer analyses, we can provide soil design parameters such as subgrade response modulus values upon request.

### Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated by Terracon during construction. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying and freezing of the bearing materials during construction. Excessively wet or dry material, frozen, or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

Existing fill and otherwise unsuitable bearing materials should be over excavated below the foundations. Overexcavation for structural fill placement below footings should be conducted as shown below. The overexcavation should be backfilled up to the footing

base elevation, with granular structural fill, placed as recommended in the [Earthwork](#) section.



## Frost Considerations

The soils on this site are frost susceptible, and small amounts of water can affect the performance of slabs on-grade. Exterior slabs should be anticipated to heave during winter months. If frost action needs to be reduced in critical areas, we recommend the use of low-frost susceptible (LFS) fill extending to frost depth or structural slabs (for instance, structural stoops in front of building doors). We recommend the low-frost susceptible material consist of a well-graded, clean granular material with less than 6 percent passing the No. 200 sieve. Placement of LFS material in large areas may not be feasible; however, the following recommendations are provided to help reduce potential frost heave:

- Provide surface drainage away from the structures and slabs, and toward the site drainage system.
- Install drains around the perimeter mat foundations, and below exterior slabs, and connect them to the site drainage system.
- Grade clayey subgrades so groundwater potentially perched in overlying fill or aggregate base, slope toward a site drainage system.
- Place LFS fill as backfill beneath slabs critical to the project.
- Place a 3 horizontal to 1 vertical (3H:1V) transition zone between LFS fill and other soils.

## General Comments

Our analysis and opinions are based on our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained during construction, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the Owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance on the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with Contractor means and methods and are not addressed in this report. The Owner and Contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions

**Geotechnical Engineering Report**

MPCF Above Ground Tank | Mount Pleasant, Iowa

April 9, 2026 | Terracon Project No. 06265018-01



and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

**Geotechnical Engineering Report**

MPCF Above Ground Tank | Mount Pleasant, Iowa

April 9, 2026 | Terracon Project No. 06265018-01

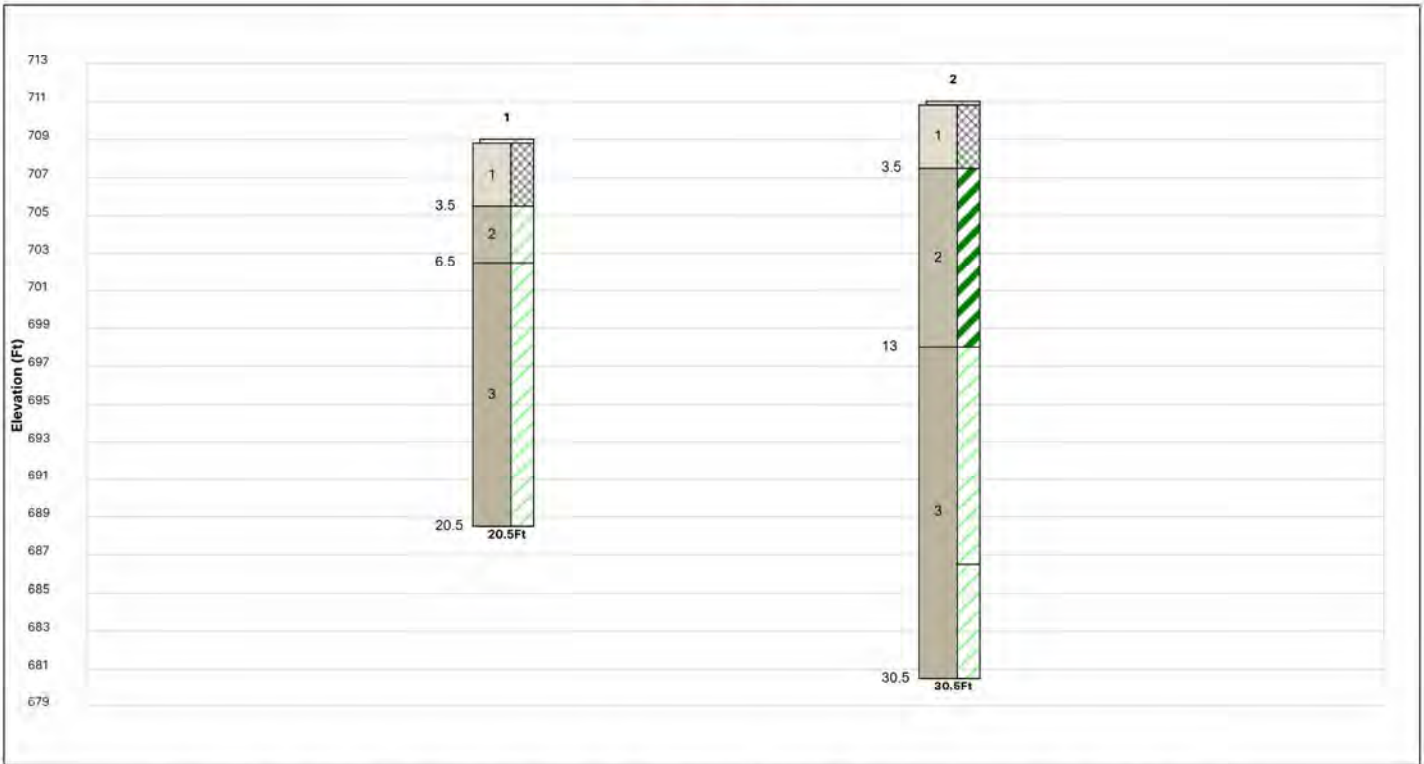


## Figures

**Contents:**

GeoModel

### GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions

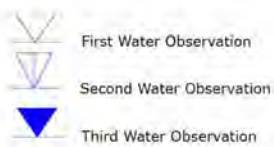
#	Layer Name	General Description
1	Existing Fill	Consists of lean clay with trace sand and gravel. Concrete rubble present in Boring 2.
2	Upper Clay	Lean clay and lean to fat clay. Generally stiff in consistency.
3	Lower Clay	Lean clay, trace sand. Generally stiff to very stiff in consistency.

Legend	
	Topsail
	Lean Clay
	Fill
	Lean to Fat Clay

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.  
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

**Notes:**

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.  
Numbers adjacent to soil column indicate depth below ground surface.



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MPCF Above Ground Tank | Mount Pleasant, Iowa

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## Attachments

# Exploration and Testing Procedures

## Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
2	20½ and 30½	Nearby tank area

**Boring Layout and Elevations:** Terracon personnel provided the boring layout using handheld GPS equipment and referencing existing site features.

Approximate ground surface elevations were obtained from IowaDNR LiDAR mapping. The LiDAR data is reported to have a horizontal resolution of three meters and was aggregated from one meter resolution elevation data from the State of Iowa’s LiDAR program. True surface elevations at the exploration locations could differ due to interpolation and other differences that occur from superposing approximate locations on the mapping system utilized. The ground surface elevations indicated on the logs are approximate and have been rounded to the nearest foot.

The locations and elevations of the borings are considered accurate only to the degree implied by the means and methods used to define them. If more precise elevations and boring layout are desired, we recommend borings be surveyed.

**Subsurface Exploration Procedures:** We advanced the borings with an ATV-mounted rotary drill rig using continuous flight, solid-stem augers. Samples were obtained from the borings using thin-walled tube and split-barrel sampling procedures. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge was pushed hydraulically into the soil to obtain a relatively undisturbed sample. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded subsurface water levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field

## Geotechnical Engineering Report

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logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

### Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Water Content
- Unit Weight
- Unconfined Compression

Based on the results of our field and laboratory programs, we described and classified the soil samples in general accordance with the Unified Soil Classification System.

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## Site Location and Exploration Plan

**Contents:**

Site Location

Exploration Plan

Note: All attachments are one page unless noted above.

## Site Location



## Exploration Plan



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## **Exploration and Laboratory Results**

**Contents:**

Boring Logs (Borings 1 and 2)

Note: All attachments are one page unless noted above.

### BORING LOG NO. 1

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Hand Penetrometer (tsf)	Strength Test		Water Content (%)	Dry Unit Weight (pcf)
										Compressive Strength (tsf)	Strain (%)		
1		0.2	<b>Approx. 2" of Rootzone</b>		709.0								
			<b>FILL- LEAN CLAY</b> , dark brown, trace sand, gravel, and organics		708.8								
2		3.5	<b>LEAN CLAY (CL)</b> , dark brown, stiff, trace organics		705.5		20		4.0			15.6	
		5					5	2-5-8 N = 13	4.5			20	
3		6.5	<b>LEAN CLAY (CL)</b> , brown, stiff to very stiff, trace sand		702.5		21		2.0	2.21	15	17.5	107.8
		10					13	3-5-7 N = 12	2.5			24	
		15					11	3-4-4 N = 8	1.75			15	
		20				688.5		13	7-9-10 N = 19	4.5			11
<b>Boring Terminated at 20.5 Ft</b>													

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).  
 See Supporting Information for explanation of symbols and abbreviations.

**Notes**  
 Elevation Reference: Elevation obtained using USGS National Map

**Water Level Observations**  
 Groundwater not encountered

**Advancement Method**  
 0-20.5 Ft. Solid Stem/Flight Auger

**Abandonment Method**  
 Boring backfilled with auger cuttings upon completion.

**Equipment**  
 416/CME-550X

**Hammer Type**  
 Automatic

**Driller**  
 CN

**Logged By**  
 AS

**Boring Started**  
 03/11/2026

**Boring Completed**  
 03/11/2026

## BORING LOG NO. 2

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Hand Penetrometer (tsf)	Strength Test		Water Content (%)	Dry Unit Weight (pcf)		
										Compressive Strength (tsf)	Strain (%)				
1		0.2	<b>Approx. 2" of Rootzone</b>		711.0										
			<b>FILL- LEAN CLAY</b> , dark brown to brown, with rubble, trace sand		710.8	6	2-11-17 N = 28	1.0				23			
2		3.5	<b>LEAN TO FAT CLAY (CL/CH)</b> , brown, stiff, trace sand		707.5	7	4-5-6 N = 11	4.0				20			
						14			0.75	1.485	7.6	23.5	100		
						15	1-2-4 N = 6		1.5				21		
						13.0									
3		13.0	<b>LEAN CLAY (CL)</b> , brown, stiff to very stiff, trace sand and gravel		698.0	21			1.0	1.92	14.9	13.9	119.9		
						20	3-4-6 N = 10		2.75				13		
						24.5	7	6-9-11 N = 20		4.5				12	
						25									
			cobbles encountered at about 24.5 feet		686.5										
					30	13	7-8-13 N = 21		4.5				11		
<b>Boring Terminated at 30.5 Ft</b>															

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (if any).  
 See Supporting Information for explanation of symbols and abbreviations.

**Notes**

Elevation Reference: Elevation obtained using USGS National Map

**Water Level Observations**

Groundwater not encountered

**Advancement Method**

0-30.5 Ft. Hollow Stem Auger

**Abandonment Method**

Boring backfilled with auger cuttings upon completion.

**Equipment**

416/CME-550X

**Hammer Type**

Automatic

**Driller**

CN

**Logged By**

AS

**Boring Started**

03/11/2026

**Boring Completed**

03/11/2026

**Geotechnical Engineering Report**

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## Supporting Information

**Contents:**

General Notes

Unified Soil Classification System

Note: All attachments are one page unless noted above.

## General Notes

Sampling			Water Level		Field Tests	
Auger Cuttings	Modified California Ring Sampler	Rock Core	Water Level Initially Encountered		N	Standard Penetration Test Resistance (Blows/Ft.)
Dynamic Cone Penetrometer	Modified Dames & Moore Ring Sampler	Dual Sampler SPT	Water Level After a Specified Period of Time		(HP)	Hand Penetrometer
Grab Sample	GeoProbe Macro Core or Large Bore	No Recovery	Water Level After a Specified Period of Time	Cave In Encountered	(T)	Torvane
Ring Sampler	Shelby Tube	Standard Penetration Test	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.		(DCP)	Dynamic Cone Penetrometer
Split Spoon	Texas Cone Penetrometer	Vane Shear			UC	Unconfined Compressive Strength
					(PID)	Photo-Ionization Detector
					(OVA)	Organic Vapor Analyzer

### Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

### Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

### Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

### Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

## Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests <sup>A</sup>				Soil Classification	
				Group Symbol	Group Name <sup>B</sup>
<b>Coarse-Grained Soils:</b> More than 50% retained on No. 200 sieve	<b>Gravels:</b> More than 50% of coarse fraction retained on No. 4 sieve	<b>Clean Gravels:</b> Less than 5% fines <sup>C</sup>	$Cu \geq 4$ and $1 \leq Cc \leq 3$ <sup>E</sup>	GW	Well-graded gravel <sup>F</sup>
		<b>Gravels with Fines:</b> More than 12% fines <sup>C</sup>	$Cu < 4$ and/or $[Cc < 1$ or $Cc > 3.0]$ <sup>E</sup>	GP	Poorly graded gravel <sup>F</sup>
			Fines classify as ML or MH	GM	Silty gravel <sup>F, G, H</sup>
		<b>Sands:</b> 50% or more of coarse fraction passes No. 4 sieve	<b>Clean Sands:</b> Less than 5% fines <sup>D</sup>	Fines classify as CL or CH	GC
	$Cu \geq 6$ and $1 \leq Cc \leq 3$ <sup>E</sup>			SW	Well-graded sand <sup>I</sup>
	<b>Sands with Fines:</b> More than 12% fines <sup>D</sup>		$Cu < 6$ and/or $[Cc < 1$ or $Cc > 3.0]$ <sup>E</sup>	SP	Poorly graded sand <sup>I</sup>
			Fines classify as ML or MH	SM	Silty sand <sup>G, H, I</sup>
	<b>Fine-Grained Soils:</b> 50% or more passes the No. 200 sieve	<b>Silts and Clays:</b> Liquid limit less than 50	<b>Inorganic:</b>	PI > 7 and plots above "A" line <sup>J</sup>	CL
PI < 4 or plots below "A" line <sup>J</sup>				ML	Silt <sup>K, L, M</sup>
<b>Organic:</b>			$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$	OL	Organic clay <sup>K, L, M, N</sup> Organic silt <sup>K, L, M, O</sup>
			<b>Silts and Clays:</b> Liquid limit 50 or more	<b>Inorganic:</b>	PI plots on or above "A" line
PI plots below "A" line		MH			Elastic silt <sup>K, L, M</sup>
<b>Organic:</b>		$\frac{LL \text{ oven dried}}{LL \text{ not dried}} < 0.75$		OH	Organic clay <sup>K, L, M, P</sup> Organic silt <sup>K, L, M, Q</sup>
		<b>Highly organic soils:</b>		Primarily organic matter, dark in color, and organic odor	

<sup>A</sup> Based on the material passing the 3-inch (75-mm) sieve.

<sup>B</sup> If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

<sup>C</sup> 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.

<sup>D</sup> 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.

<sup>E</sup>  $Cu = D_{60}/D_{10}$      $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

<sup>F</sup> If soil contains  $\geq 15\%$  sand, add "with sand" to group name.

<sup>G</sup> If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

<sup>H</sup> If fines are organic, add "with organic fines" to group name.

<sup>I</sup> If soil contains  $\geq 15\%$  gravel, add "with gravel" to group name.

<sup>J</sup> If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

<sup>K</sup> If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

<sup>L</sup> If soil contains  $\geq 30\%$  plus No. 200 predominantly sand, add "sandy" to group name.

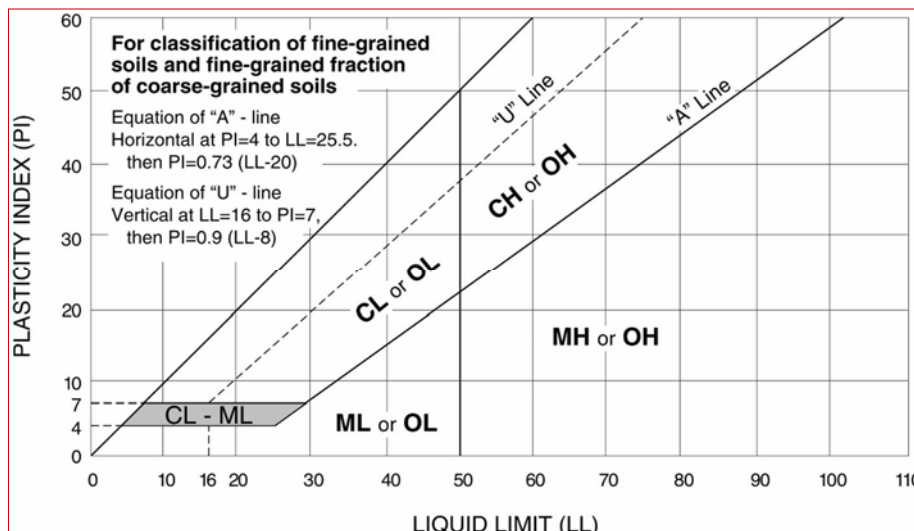
<sup>M</sup> If soil contains  $\geq 30\%$  plus No. 200, predominantly gravel, add "gravelly" to group name.

<sup>N</sup> PI  $\geq 4$  and plots on or above "A" line.

<sup>O</sup> PI < 4 or plots below "A" line.

<sup>P</sup> PI plots on or above "A" line.

<sup>Q</sup> PI plots below "A" line.



**SECTION 00 3143**

**PERMIT APPLICATION**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Permit Application Information
- B. Licenses, Permits, and Related Inspections

**1.02 PERMIT APPLICATION INFORMATION**

- A. Electrical Permit and Inspections: Trade Contractor is responsible for permits and inspections.
- B. Other Applicable inspections: Trade Contractor is responsible for any other applicable project specific permits and inspections.

**1.03 LICENSES, PERMITS, AND RELATED INSPECTIONS**

- A. The Bidder shall comply with all codes, laws, ordinances, rules and regulations of any public authority having jurisdiction that bears on the performance of its work. All construction, materials and methods shall comply with the State Building Codes, except where plans and specifications establish a higher standard.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 00 4116**

**BID FORM**

**The Bid Form must be submitted online through the State's [IMPACS Electronic Procurement System](#).**

RFB #950000-01

BID FORM for CONSTRUCTION CONTRACT  
for  
Mount Pleasant Correctional Facility  
1200 Grand Avenue, Mount Pleasant, Iowa  
Project 9500.00

Iowa Department of Administrative Services  
Hoover State Office Building, Level 3  
1305 East Walnut Street  
Des Moines, Iowa 50319-0105

The following information is to be completed and submitted with your bid..

1. Bid Form - Completed and Signed (to be uploaded with bid submission)
2. Non Discrimination Clause Information
3. Contractor Targeted Small Business Enterprise Pre-Bid Contract Information
4. Bid Security – 5% of total Bid amount (to be uploaded with bid submission)

**Authorized Representative:**

The undersigned Bidder, in response to your Request for Bid for construction of the above project, having examined the Drawings, Specifications, and other Bidding Documents dated April 29, 2026, and Addenda issued and acknowledged below as received and being familiar with all the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, equipment and supplies to perform all work to construct the project in strict accordance with the proposed Contract Documents, within the time and at the prices stated below. Prices are to cover all expenses incurred in performing the work required under the proposed Contract Documents, of which this bid is a part.

Bidder acknowledges receipt of the following Addenda which are a part of the Bidding Documents and for which any effect on cost of the Work is included in the bid amounts indicated:

Number	_____	_____	_____	_____	_____
Dated	_____	_____	_____	_____	_____

Note that the State of Iowa is exempt from State and Local sales and use taxes (including local option and school option) for this project. Taxes on construction materials shall NOT be included in the bid amounts.

Amounts shall be indicated in both words and figures. In case of discrepancy, the amount indicated in words shall govern.

BID PACKAGES:

BP 01

Description: All material, labor, and equipment associated with all work shown on the contract documents complete, including the plans and specifications.

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

\_\_\_\_\_  
\_\_\_\_\_  
Dollars  
(\$ \_\_\_\_\_).

ALTERNATES:

Description:

Bidder proposes and agrees to perform all work as described in the Construction Documents for the sum of:

\_\_\_\_\_  
\_\_\_\_\_  
Dollars  
(\$ \_\_\_\_\_).

UNIT PRICES:

Description:

\_\_\_\_\_  
\_\_\_\_\_  
Dollars  
(\$ \_\_\_\_\_).

Bidder hereby certifies that:

1. This bid is genuine and is not made in the interest of or on behalf of any undisclosed person, firm or corporation;
2. Bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain any advantage over any other bidder or over the Owner.
3. Bidder hereby certifies that the Bidder is registered with the Iowa Labor Commissioner as a Contractor as required by Chapter 91C, Code of Iowa.
4. Bidder agrees to comply with all Federal and State Affirmative Action/Equal Employment Opportunity requirements concerning fair employment and will not discriminate between or among them by reason of race, color, religion, sex, national origin or physical handicap.

5. All construction under this Contract shall conform to the requirements of the *Iowa State Building Code*.
6. Bidder agrees that this bid shall remain valid and shall not be withdrawn for a period of thirty (30) calendar days after the date for receipt of bids.
7. Bidder agrees that if written notice of acceptance of this bid is mailed, emailed, or delivered to the undersigned within thirty (30) days after the date in which bids are due, or at any time thereafter before it is withdrawn, the undersigned will sign and return the Contract Agreement, prepared in accord with the Bidding Documents and this bid as accepted; and will also provide proof of insurance coverage and required surety bonds.
8. Bidder understands that the Owner reserves the right to reject any and all bids, and to waive irregularities or informalities and enter into a contract for the work, as the Owner deems to be in the best interest of the State.
9. Bidder understands that the Owner reserves the right to accept any, or no, Alternate Bid, if requested, and that the Alternate Bids may be considered in any order or combination, and the low Bidder shall be determined on the basis of the sum of the base bid and any Alternate(s) accepted.

**Subcontractors:**

The Trade Contractor must identify all Subcontractors and Suppliers within 48 hours of the published date and time for which bids must be submitted, in accordance with Iowa Code Section 8A311, as amended by House File 646 in 2011. Subcontractors and suppliers may not be changed without the approval of the Owner. Requests for changing a Subcontractor or supplier must identify the reason for the proposed change, the name of the new Subcontractor or supplier, and the change in the subcontractor or supplier price as a result of the change. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract Price via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.

**Enforcement of Reciprocal Resident Bidder Preference, per Iowa Code 73A.21.**

All bidders shall either check the box next to "Resident Bidder" or check the box next to "Nonresident Bidder" and by doing so and signing thereafter certifies and attests to the same. All information requested must be provided. Seek out the advice of an attorney if you have questions.

"Resident Bidder" means a person or entity authorized to transact business in of the State of Iowa and having a place of business for transacting business within the State of Iowa at which it is conducting and has conducted business for at least three years prior to the date of the first advertisement for the public improvement. Note, however, that if a nonresident bidder's state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable as to bidders from that state or foreign country.

Resident Bidder

Name of Resident Bidder: \_\_\_\_\_

By: \_\_\_\_\_  
 Authorized Agent and Signatory of Resident Bidder

**OR:**

Nonresident Bidder

Name of Nonresident Bidder: \_\_\_\_\_

Name of State or Foreign Country of Nonresident Bidder: \_\_\_\_\_

Particularly identify and describe any preference, labor preference, or any other type of preferential treatment, in effect in the nonresident bidder's state or foreign country at the time of this bid:

\_\_\_\_\_  
\_\_\_\_\_

NOTICE: Nonresident Bidders domiciled in a state or country with a resident labor force preference shall make and keep, for a period of not less than three years, accurate records of all workers employed on the public improvement. The records shall include each worker's name, address, telephone number when available, social security number, trade classification, and the starting ending time of employment.

By: \_\_\_\_\_  
Authorized Agent and Signatory of Nonresident Bidder

---

**REQUIRED: Bid Form shall be signed by an officer of the company with authority to bind in a contract.** Notice of acceptance of this bid, or request for additional information by the Department of Administrative Services, may be addressed to the undersigned at the address set forth below:

Legal Name of Firm: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

Title: \_\_\_\_\_

Typed Name of Signatory: \_\_\_\_\_

Email: \_\_\_\_\_

Business Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Federal Tax Identification Number: \_\_\_\_\_

Iowa Contractor Registration Number: \_\_\_\_\_

Bidder Safety Manager Name: \_\_\_\_\_

For an out-of-state Bidder, Bidder certifies that the Resident Preference given by the State or Foreign Country of Bidder's residence, \_\_\_\_\_, is \_\_\_\_\_ %.

**END OF SECTION**

## SECTION 00 4116.01

### NON-DISCRIMINATION CLAUSE

This Section is for informational purposes only. All information will be submitted online through the State's [IMPACS Electronic Procurement System](#).

#### PART 1 - GENERAL

All contractors, subcontractors, vendors and suppliers of goods and services doing business with the State of Iowa and value of said business equals or exceeds \$10,000 annually, agree as stated below.

#### 1.01 NONDISCRIMINATION CLAUSE

- A. The contractor, subcontractor, vendor and supplier of goods and services will not discriminate against an employee or applicant for employment because of race, creed, color, sex, national origin, ancestry, religion, economic status, age, disability, political opinion, or affiliations of an applicant or employee based upon the nature of the job occupation. The contractor, subcontractor, vendor and supplier will develop an Affirmative Action Program to insure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sex, national origin, ancestry, religion, economic status, age, disability, political opinions or affiliations. Such action shall include, but not be limited to the following:
  - 1. Employment.
  - 2. Upgrading.
  - 3. Demotion or transfer.
  - 4. Recruitment and advertising.
  - 5. Layoff or termination.
  - 6. Rates of pay or other forms of compensation.
  - 7. Selection for training, including apprenticeship.
- B. The contractor, subcontractor, vendor and supplier of goods and services will, in all solicitations or advertisements for employees, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, national origin, ancestry, religion, economic status, age, disability, political opinion or affiliations.
- C. The contractor, subcontractor, vendor and supplier or their collective bargaining representative will send to each labor union or representative or workers with which they have a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representative of the contractor's commitments under this section.
- D. The contractor, subcontractor, vendor and supplier of goods and services will comply with all published rules, regulations, directives and orders of the State of Iowa Affirmative Action Program Contract Compliance Provisions.
- E. The contractor, subcontractor, vendor and supplier of goods and services will furnish and file compliance reports within such time and upon such forms as provided by the Equal Employment Opportunity Officer, said forms may elicit information as to the policies, procedures, patterns, and practices of each subcontractor as state as the contractor themselves and said contractor, subcontractor, vendor and supplier will permit access to their employment books, records and accounts to the State's Equal Employment Opportunity Officer, for the purpose of investigation to ascertain compliance with this Contract and with rules regulations of the State's Affirmative Action Program.
- F. In the event of the contractor's noncompliance with the nondiscrimination clauses of this Contract or with any of such rules, regulations and orders; this Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further contracts in accordance with procedures authorized by the State of Iowa.

- G. The contractor, subcontractor, vendor and supplier of goods and services will include, or incorporate by reference, the provisions of the nondiscrimination clause in every contract, subcontract or purchase order unless exempted by the rules, regulations or orders of the State's Affirmative Action Program, and will provide in every subcontract or purchase order that said provisions will be binding upon each contractor, subcontractor or seller.
- H. The parties agree to comply with "Compliance with the Law; Nondiscrimination in Employment" of the current Terms and Conditions at the award of this contract. Current Terms and Conditions may be found on the following web site and are, by this reference, made a part of this Agreement. <https://das.iowa.gov/procurement/terms-and-conditions>
- I. We certify and recognize that we are morally and legally committed to nondiscrimination in employment. Any person who applies for employment with our company will not be discriminated against because of race, creed, color, sex, national origin, ancestry, religion, economic status, age or disabilities, unless disabilities are based upon the nature of the job occupation.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 00 4116.02**

**TARGETED SMALL BUSINESS INFORMATION**

**This Section is for informational purposes only. All information will be submitted online through the State's [IMPACS Electronic Procurement System](#).**

**PART 1 - GENERAL**

**1.01 TARGETED SMALL BUSINESS INFORMATION**

- A. Subcontractor Targeted Small Business Enterprise Pre-Bid Contact Information, including subcontractor and dollar amount to be subcontracted, is to accompany the Bid submission. Bidders shall comply with all affirmative action/equal opportunity provisions of State and Federal laws. The Owner seeks to provide opportunities for Targeted Small Businesses in accordance with the provisions of Chapter 73 of the Code of Iowa.
  
- B. [Search the Targeted Small Business Directory](#) for certified State of Iowa Targeted Small Businesses.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES  
 SUBCONTRACTOR  
 TARGETED SMALL BUSINESS ENTERPRISE  
 PRE-BID CONTRACT INFORMATION

<b>CONTRACTOR</b>	<b>BID NO.</b>
<b>CONTRACTOR</b>	<b>PAGE #</b>

(to be completed by bidder)

*You are requested to provide the information on this form showing your targeted Small Business enterprises contracts made prior to your bid submission. This information is subject to verification and confirmation. NOTE: The Department of General Services will not regard your acceptance or use of a low quote or bid from a non-targeted Small Business Enterprise on any subcontract item as evidence itself of any lack of good faith effort to solicit targeted Small Business Enterprise subcontractors on this project. However, every effort shall be made to solicit quotes or bids on as many subcontractable items as necessary to evidence affirmative action in contracting.*

**TABLE OF INFORMATION SHOWING BIDDER'S PRE-BID TARGETED SMALL BUSINESS ENTERPRISE CONTACTS**

SUBCONTRACTOR	TSB	DATES CONTACTED	QUOTES RECEIVED		QUOTATION USED IN BID	
			YES/NO	DATES	YES/NO	DOLLAR AMOUNT PROPOSED TO BE SUBCONTRACTED

Total dollar amount proposed to be subcontracted to TSB on this project \$ \_\_\_\_\_  
 List items to be subcontracted. (if more space is needed, use reverse side.)

**SECTION 00 4313**

**BID SECURITY FORMS**

**PART 1 - GENERAL**

**1.01 BID SECURITY FORMS**

- A. A Bid Bond form will be required on this project. An amended ConsensusDocs 262 is attached for reference following this page. ConsensusDocs bid bond form is not required (other standard forms are acceptable to the State of Iowa).

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**



**CONSENSUSDOCS 262**  
**BID BOND**  
**(AMENDED BY STATE OF IOWA)**

This document was developed through a collaborative effort of organizations representing a wide cross-section of the design and construction industry. The organizations endorsing this document believe it represents a fair allocation of risk and responsibilities for all project participants.

Endorsing organizations recognize that this document must be reviewed and adapted to meet specific needs and applicable laws. This document has important legal and insurance consequences. You are encouraged to consult legal, insurance and surety advisors before completing or modifying this document. The software includes a notes section indicating where information is to be inserted to complete this document. Further information and endorsing organizations' perspectives are available at [www.consensusdocs.org/guidebook](http://www.consensusdocs.org/guidebook).

For Use with ConsensusDOCS 200, Standard Form of Agreement and General Conditions Between Owner and Constructor (Where the Contract Price is a Lump Sum) and ConsensusDOCS 500, Standard Agreement and General Conditions Between Owner and Construction Manager.

The Trade Contractor, \_\_\_\_\_ (the "Trade Contractor") has submitted a Bid to the Owner, \_\_\_\_\_ (the "Owner") for the \_\_\_\_\_ (the "Project") in accordance with the Bidding Documents, including Drawings and Specifications prepared by \_\_\_\_\_ (the "Design Professional").

**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.  
 ConsensusDOCS 262 • BID BOND Copyright © 2007, Revised 2009 and 2011, ConsensusDOCS LLC. AN INDIVIDUAL PURCHASE OF THIS DOCUMENT PERMITS THE USER TO PRINT ONE CONTRACT FOR ONE PROJECT ONLY. YOU MAY ONLY MAKE COPIES OF A COMPLETED DOCUMENT FOR DISTRIBUTION TO PARTIES IN DIRECT CONNECTION WITH THE SPECIFIC CONSTRUCTION PROJECT. ANY OTHER USES, INCLUDING COPYING THE DOCUMENT, ARE STRICTLY PROHIBITED.

By virtue of this Bid Bond (the "Bond"), the Constructor as Principal and \_\_\_\_\_ as Surety ("Surety"), are bound to the Owner as Oblige in the maximum amount \_\_\_\_\_, Dollars (\$\_\_\_\_\_) (the "Bond Sum"). The Constructor and Surety hereby bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein.

1. If the Oblige shall accept the bid of the Constructor, the Constructor shall enter into an Agreement with the Oblige in accordance with the terms of such Bid.
2. Constructor shall procure such bond or bonds as are specified in the Contract Documents for the faithful performance of the Work and for the prompt payment of labor and materials furnished in the performance of the Work.
3. If the Constructor fails to enter such Agreement and give such bonds, the Constructor shall pay to the Oblige the difference between the amount of Constructor's bid and the amount of such agreement the Oblige in good faith executes with another Party to perform the Work covered by Constructor's Bid, not to exceed the Bond Sum stated above.
4. If the Constructor shall fulfill its obligation under Articles 1 through 3, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

This Bond is entered into as of \_\_\_\_\_ (date)

SURETY: \_\_\_\_\_ (seal)

BY: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_ (Attach Power of Attorney)

Witness: .....

(Additional signatures, if any, appear on attached page)

Constructor: \_\_\_\_\_ (seal)

BY: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Witness: .....

(Additional signatures, if any, appear on attached page)

**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

ConsensusDOCS 262 • BID BOND Copyright © 2007, Revised 2009 and 2011, ConsensusDOCS LLC, AN INDIVIDUAL PURCHASE OF THIS DOCUMENT PERMITS THE USER TO PRINT ONE CONTRACT FOR ONE PROJECT ONLY, YOU MAY ONLY MAKE COPIES OF A COMPLETED DOCUMENT FOR DISTRIBUTION TO PARTIES IN DIRECT CONNECTION WITH THE SPECIFIC CONSTRUCTION PROJECT, ANY OTHER USES, INCLUDING COPYING THE DOCUMENT, ARE STRICTLY PROHIBITED.

**SECTION 00 5200**

**AGREEMENT FORM**

**PART 1 - GENERAL**

**1.01 AGREEMENT FORM**

- A. The Form of Agreement to be used on this project is a modified ConsensusDocs 802. A sample is attached following this page.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

## ConsensusDocs 802

### STANDARD FORM OF AGREEMENT BETWEEN OWNER AND TRADE CONTRACTOR

(Where the Construction Manager Is the Owner's Agent)



#### TABLE OF ARTICLES

1. AGREEMENT
2. GENERAL PROVISIONS
3. TRADE CONTRACTOR'S OBLIGATIONS
4. OWNER'S RESPONSIBILITIES
5. SUBCONTRACTS
6. TRADE CONTRACT TIME
7. TRADE CONTRACT PRICE
8. CHANGES
9. PAYMENT
10. INDEMNITY, INSURANCE, WAIVERS AND BONDS
11. SUSPENSION, NOTICE TO CURE AND TERMINATION OF AGREEMENT
12. DISPUTE MITIGATION AND RESOLUTION
13. MISCELLANEOUS PROVISIONS
14. TRADE CONTRACT DOCUMENTS

This Agreement has important legal and insurance consequences. Consultations with an attorney and with insurance and surety consultants are encouraged with respect to its completion or modification. Notes indicate where information is to be inserted to complete this Agreement.

## ARTICLE 1 AGREEMENT

This Trade Contractor Agreement is made effective as of the XX day of Month, Year , by and between the

OWNER

State of Iowa - DAS, Department of Administrative Services ("DAS"). DAS's principal office is located: 109 SE 13th Street, Des Moines, IA 50319-0120.

and the

TRADE CONTRACTOR

*Contractor Name*

*Address*

*City, State, Zip*

for work in connection with the following

PROJECT

*XXXX.XX - Project Name*

The CONSTRUCTION MANAGER is

*Construction Manager Name*

*Address*

*City, State, Zip*

The DESIGN PROFESSIONAL for the Project is

*Designer Name*

*Address*

*City, State, Zip*

Notice to the Parties shall be given at the above addresses.

## ARTICLE 2 GENERAL PROVISIONS

2.1 RELATIONSHIP OF PARTIES The Owner and the Trade Contractor agree to proceed with this Agreement on the basis of mutual trust, good faith and fair dealing and shall cooperate with each other and with the Construction Manager and Design Professional in furthering the Owner's interests. The Trade Contractor shall use its diligent efforts to perform the work in an expeditious manner consistent with the Trade Contract Documents. The Owner and the Trade Contractor will endeavor to promote harmony and cooperation among all Project participants.

2.1.1 The Owner and the Trade Contractor shall perform their obligations with integrity, ensuring at a minimum that

2.1.1.1 conflicts of interest shall be avoided or disclosed promptly to the other Party; and

2.1.1.2 the Trade Contractor and the Owner warrant that they have not and shall not pay nor receive any contingent fees or gratuities to or from the other Party, including its agents, officers and employees, Subcontractors or others for whom they may be liable, to secure preferential

treatment.

**2.2 PROJECT ORGANIZATION** This Agreement is for the performance of work described herein in connection with the construction of the Project. The Owner also may enter into separate agreements with other trade contractors for other portions of the Project. The Owner has entered or will enter into a Construction Management Agreement with the Construction Manager, and a design agreement with the Design Professional.

**2.3 INDEPENDENT CONTRACTOR** The Trade Contractor represents that it is an independent contractor and that its performance of the Trade Contract Work it shall act as an independent contractor. Neither Trade Contractor nor any of its agents or employees shall act on behalf of the Owner except as provided in this Agreement or unless authorized in writing by the Owner.

**2.4 CONSTRUCTION MANAGER IS OWNER'S AGENT** The Construction Manager will represent the Owner as its agent in the administration and management of this Agreement. Any instructions, reviews, approvals, orders or directions given to the Trade Contractor by the Construction Manager will be given on behalf of and as agent for the Owner. The Trade Contractor shall be obligated to respond or perform as if the same were given directly by the Owner. The Trade Contractor shall communicate and provide all requests and concerns regarding the Trade Contract Work to the Construction Manager. The Trade Contractor shall provide copies to the Construction Manager of all notices to the Owner required by and regarding this Agreement.

**2.5 CONSTRUCTION MANAGER NOT IN PRIVITY WITH TRADE CONTRACTOR** This Agreement shall not give the Trade Contractor any claim or right of action against the Construction Manager. The Trade Contractor and its subcontractors shall not be beneficiaries of any obligations of the Construction Manager. This Agreement shall not create a contractual relationship between any parties except the Owner and the Trade Contractor.

**2.5A NO THIRD-PARTY BENEFICIARY** There are no third-party beneficiaries of this Agreement.

**2.6 DESIGN PROFESSIONAL** The Owner, through its Design Professional, shall provide all architectural and engineering design services necessary for the completion of the Work, except the following:

#### No exceptions

The Trade Contractor shall not be required to provide professional services which constitute the practice of architecture or engineering except as otherwise provided in section 3.15.

2.6.1 The Owner shall obtain from the Design Professional either a license for Trade Contractor and Subcontractors to use the design documents prepared by the Design Professional or ownership of the copyrights for such design documents, and shall defend, indemnify and hold harmless the Trade Contractor against any suits or claims of infringement of any copyrights or licenses arising out of the use of the design documents. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

**2.7 EXTENT OF AGREEMENT** This Agreement is solely for the benefit of the Parties, represents the entire integrated agreement between the Parties, and supersedes all prior negotiations, representations and agreements, either written or oral. This Agreement and each and every provision is for the exclusive benefit of the Owner and the Trade Contractor and not for the benefit of any third party except to the extent expressly provided in this Agreement. In the event of conflict between this Agreement and any of the Exhibits or any other documents incorporated into this Agreement, the terms and provisions of this Agreement shall control.

#### 2.8 DEFINITIONS



2.8.1 Agreement means this ConsensusDocs 802 Standard Form of Agreement Between Owner and Trade Contractor (Where the Construction Manager is the Owner's Agent), as modified by the Parties, and Exhibits and Attachments made part of this Agreement upon its execution.

2.8.2 Design Professional means the Architect, Design Professional or Engineer identified in ARTICLE 1 and its consultants, retained by Owner to perform design services for the Project, and licensed in the State in which the Project is located. The use of the term Design Professional in this Agreement is for convenience and is not intended to imply or infer that the individual or entity named in ARTICLE 1 will provide design professional services in a discipline in which it is not licensed.

2.8.3 Construction Manager means the Construction Manager identified in ARTICLE 1 and its authorized representative.

2.8.4 The Construction Schedule is the document initially prepared by and updated by the Construction Manager and approved by the Owner that indicates proposed activity sequences, durations, or milestone dates for such activities as receipt and approval of pertinent information, issuance of the Construction Documents, the preparation and processing of shop drawings and samples, delivery of materials or equipment requiring long-lead-time procurement, Owner's occupancy requirements and estimated dates of Substantial Completion and Final Completion of the Project.

2.8.5 The term Day shall mean calendar day unless otherwise specifically defined.

2.8.6 Final Completion occurs on the date when the Trade Contractor's obligations under this Agreement are complete and accepted by the Owner and final payment becomes due and payable, as established in ARTICLE 6. This date shall be confirmed by a Certificate of Final Completion signed by the Owner and the Trade Contractor.

2.8.7 A Hazardous Material is any substance or material identified now or in the future as toxic or hazardous under any federal, state or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing handling, disposal or clean-up.

2.8.8 A Material Supplier is a person or entity retained by the Trade Contractor to provide material or equipment for the Trade Contract Work. This definition is not intended to, and shall not be interpreted to, expand or modify the definition(s) of materials or material suppliers contained in Iowa Code Chapter 573.

2.8.9 Others means other contractors, material suppliers, and persons at the Worksite who are not employed by the Trade Contractor or Subcontractors.

2.8.10 The term Overhead shall mean a) payroll costs and other compensation of Trade Contractor employees in the Trade Contractor's principal and branch offices; b) general and administrative expenses of the Trade Contractor's principal and branch offices including deductibles paid on any insurance policy and c) the Trade Contractor's capital expenses, including interest on capital used for the Work.

2.8.11 Owner is the person or entity identified in ARTICLE 1 as Owner, and includes the Owner's representative.

2.8.12 The Project, as identified in ARTICLE 1, is the building, facility or other improvements for which the Trade Contractor is to perform the Trade Contract Work.

2.8.13 A Subcontractor is a person or entity retained by the Trade Contractor as an independent contractor to provide the labor, materials, equipment or services necessary to complete a specific

portion of the Work. This definition is not intended to, and shall not be interpreted to, expand or modify the definition(s) of materials or material suppliers contained in Iowa Code Chapter 573.

2.8.14 Per Iowa Code Section 26.13, "substantially completed" means the first date on which any of the following occurs: (1) Completion of the Project (or Trade Contract Work, in the case of the multiple Trade Contractors) or when the Project (or Trade Contract Work in the case of multiple Trade Contractors) has been substantially completed in general accordance with the terms and provisions of the contract. (2) The work on the Project (or Trade Contract Work in the case of multiple Trade Contractors) or on the designated portion is substantially completed in general accordance with the terms of the contract so that the State Iowa can occupy or utilize the Project or designated portion of the Project for its intended purpose. (3) The Project (or Trade Contract Work in the case of multiple Trade Contractors) is certified as having been substantially completed by either of the following: (a) the architect or engineer authorized to make such certification (which is defined in this Agreement as the Design Professional). (b) The authorized contract representative (which is defined in this Agreement as the Owner's Representative). (4) The State of Iowa is occupying or utilizing the Project (or Trade Contract Work in the case of multiple Trade Contractors) for its intended purpose. This subparagraph shall not apply to highway, bridge, or culvert projects.

2.8.15 Terrorism means a violent act, or an act that is dangerous to human life, property or infrastructure, that is committed by an individual or individuals and that appears to be part of an effort to coerce a civilian population or to influence the policy or affect the conduct of any government by coercion. Terrorism includes, but is not limited to, any act certified by the United States government as an act of terrorism pursuant to the Terrorism Risk Insurance Act, as amended.

2.8.16 A Trade Contract Change Order is a written order signed by the Owner and the Trade Contractor after execution of this Agreement, indicating changes in the scope of the Trade Contract Work, the Trade Contract Price or Trade Contract Time, including substitutions proposed by the Trade Contractor and accepted by the Owner. Trade Contract Change Orders shall be executed using the ConsensusDOCS 813 Trade Contract Change Order (CM as Owner's Agent) form document with exhibits attached as necessary.

2.8.17 The Trade Contract Documents consist of this Agreement (as modified), the drawings, specifications, addenda issued prior to execution of this Agreement, approved submittals, information furnished by the Owner under subsection 4.1.3, the bid documents, other documents listed in this Agreement and any modifications issued after execution.

2.8.18 The Trade Contract Price is the amount indicated in section 7.1 of this Agreement.

2.8.19 The Trade Contract Time is the period between the Date of Commencement and Final Completion.

2.8.20 Trade Contract Work means the construction and services provided by the Trade Contractor.

2.8.20.1 Changed Work means work that is different from the original scope of Trade Contract Work; or work that changes the Trade Contract Price or Trade Contract Time.

2.8.20.2 Defective Work is any portion of the Trade Contract Work that is not in conformance with the Trade Contract Documents.

2.8.21 The Trade Contractor is the person or entity identified in ARTICLE 1 and includes the Trade Contractor's Representative.

2.8.22 The term Work means the construction and services necessary or incidental to fulfill the Trade

Contractors' obligations for the Project. The Work may refer to the whole Project or only a part of the Project.

2.8.23 Worksite means the geographical area at the location of the Project as identified in ARTICLE 1 where the Trade Contract Work is to be performed.

### ARTICLE 3 TRADE CONTRACTOR'S OBLIGATIONS

#### 3.1 GENERAL RESPONSIBILITIES

3.1.1 RESPONSIBILITIES The Trade Contractor shall provide all of the labor, materials, equipment and services necessary to complete the Trade Contract Work, all of which shall be provided in full accord with or as reasonably inferable from the Trade Contract Documents as being necessary to produce the indicated results.

3.1.2 The Trade Contractor shall be responsible for the supervision and coordination of the Trade Contract Work, including the construction means, methods, techniques, sequences and procedures utilized, unless the Trade Contract Documents give other specific instructions. In such case, the Trade Contractor shall not be liable to the Owner for damages resulting from compliance with such instructions unless the Trade Contractor recognized and failed to timely report to the Owner any error, inconsistency, omission or unsafe practice that it discovered in the specified construction means, methods, techniques, safety, sequences or procedures.

3.1.3 The Trade Contractor shall perform Trade Contract Work only within locations allowed by the Trade Contract Documents, applicable permits and applicable local law.

#### 3.2 COOPERATION WITH WORK OF OWNER AND OTHERS

3.2.1 The Owner may perform work at the Worksite directly or by Others. Any agreements with Others to perform construction or operations related to the Project shall include provisions pertaining to insurance, indemnification, waiver of subrogation, coordination, interference, clean up and safety which are substantively the same as the corresponding provisions of this Agreement.

3.2.2 In the event that the Owner elects to perform work at the Worksite directly or by Others, the Trade Contractor and the Owner shall, with the assistance of the Construction Manager, coordinate the activities of all forces at the Worksite and agree upon fair and reasonable schedules and operational procedures for Worksite activities. The Owner shall require each separate contractor to cooperate with the Trade Contractor and assist with the coordination of activities and the review of construction schedules and operations. The Trade Contract Price and Trade Contract Time shall be equitably adjusted, as mutually agreed by the Parties, for subsequent changes made necessary by the coordination of construction activities, and the Trade Contractor's construction schedule and the Construction Schedule shall be revised accordingly. The Trade Contractor, Owner and Others shall adhere to the revised Construction Schedule until it may subsequently be revised.

3.2.3 With regard to the work of the Owner and Others, the Trade Contractor shall (a) proceed with the Trade Contract Work in a manner which does not hinder, delay or interfere with the work of the Owner or Others or cause the work of the Owner or Others to become defective, (b) afford the Owner or Others reasonable access for introduction and storage of their materials and equipment and performance of their activities, and (c) coordinate the Trade Contractor's construction and operations with theirs as required by this section.

3.2.4 Before proceeding with any portion of the Trade Contract Work affected by the construction or operations of the Owner or Others, the Trade Contractor shall give the Owner and Construction



Manager prompt written notification of any defects the Trade Contractor discovers in their work which will prevent the proper execution of the Trade Contract Work. The Trade Contractor's obligations in this section do not create a responsibility for the work of the Owner or Others, but are for the purpose of facilitating the Trade Contract Work. If the Trade Contractor does not notify the Owner and Construction Manager of patent defects interfering with the performance of the Trade Contract Work, the Trade Contractor acknowledges that the work of the Owner or Others is not defective and is acceptable for the proper execution of the Trade Contract Work. Following receipt of written notice from the Trade Contractor of defects, the Owner, through the Construction Manager, shall promptly inform the Trade Contractor what action, if any, the Trade Contractor shall take with regard to the defects.

### 3.3 RESPONSIBILITY FOR PERFORMANCE

3.3.1 In order to facilitate its responsibilities for completion of the Work in accordance with and as reasonably inferable from the Trade Contract Documents, prior to commencing the Work the Trade Contractor shall examine and compare the drawings and specifications with information furnished by the Owner pursuant to subsection 4.1.3, relevant field measurements made by the Trade Contractor and any visible conditions at the Worksite affecting the Trade Contract Work.

3.3.2 If in the course of the performance of the obligations in subsection 3.3.1 the Trade Contractor discovers any errors, omissions or inconsistencies in the Contract Documents, the Trade Contractor shall promptly report them to the Owner and Construction Manager. It is recognized, however, that the Trade Contractor is not acting in the capacity of a licensed design professional, and that the Trade Contractor's examination is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies or to ascertain compliance with applicable laws, building codes or regulations. Following receipt of written notice from the Trade Contractor of defects, the Owner shall promptly inform the Trade Contractor what action, if any, the Trade Contractor shall take with regard to the defects.

3.3.3 The Trade Contractor shall have no liability for errors, omissions or inconsistencies discovered under subsections 3.3.1 and 3.3.2 unless the Trade Contractor fails to report a recognized problem to the Owner and Construction Manager.

3.3.4 The Trade Contractor may be entitled to additional costs or time if there are changes in the scope of the Trade Contract Work that increase the cost of the Work or increase the number of days required to perform the Work, respectively, because of clarifications or instructions arising out of the Trade Contractor's reports described in the three preceding Subsections.

### 3.4 CONSTRUCTION PERSONNEL AND SUPERVISION

3.4.1 The Trade Contractor shall provide competent supervision for the performance of the Trade Contract Work. Before commencing the Trade Contract Work, Trade Contractor shall notify Owner and Construction Manager in writing of the name and qualifications of its proposed superintendent(s) and project manager so Owner and Construction Manager may review the individual's qualifications. If, for reasonable cause, the Owner or Construction Manager refuses to approve the individual, or withdraws its approval after once giving it, Trade Contractor shall name a different superintendent or project manager for Owner's and Construction Manager's review. Any disapproved superintendent shall not perform in that capacity thereafter at the Worksite.

3.4.2 The Trade Contractor shall be responsible to the Owner for acts or omissions of parties or entities performing portions of the Trade Contract Work for or on behalf of the Trade Contractor or any of its Subcontractors.

3.4.3 The Trade Contractor shall permit only qualified persons to perform the Trade Contract Work. The

Trade Contractor shall enforce safety procedures, strict discipline and good order among persons performing the Trade Contract Work. If the Owner or Construction Manager determines that a particular person does not follow safety procedures, or is unfit or unskilled for the assigned work, the Trade Contractor shall immediately reassign the person on receipt of the Owner's or Construction Manager's written notice to do so.

**3.4.4 TRADE CONTRACTOR'S REPRESENTATIVE** The Trade Contractor's authorized representative is . The Trade Contractor's representative shall possess full authority to receive instructions from the Owner and to act on those instructions. The Trade Contractor shall notify the Owner and the Construction Manager in writing of a change in the designation of the Trade Contractor's representative. The Trade Contractor's representative is also authorized to bind the Trade Contractor in all matters relating to this Agreement including, without limitation, all matters requiring the Trade Contractor's approval, authorization, or written notice. The Trade Contractor's representative is also authorized to resolve disputes in accordance with Section 12.2 of this Agreement.

### 3.5 MATERIALS FURNISHED BY THE OWNER OR OTHERS

**3.5.1** In the event the Trade Contract Work includes installation of materials or equipment furnished by the Owner or Others, it shall be the responsibility of the Trade Contractor to examine the items so provided and thereupon handle, store and install the items, unless otherwise provided in the Trade Contract Documents, with such skill and care as to provide a satisfactory and proper installation. Loss or damage due to acts or omissions of the Trade Contractor shall be the responsibility of the Trade Contractor and may be deducted from any amounts due or to become due the Trade Contractor. Any defects discovered in such materials or equipment shall be reported at once to the Owner and Construction Manager. Following receipt of written notice from the Trade Contractor of defects, the Owner shall promptly inform the Trade Contractor what action, if any, the Trade Contractor shall take with regard to the defects.

### 3.6 TESTS AND INSPECTIONS

**3.6.1** The Trade Contractor shall schedule all required tests, approvals and inspections of the Trade Contract Work or portions thereof at appropriate times so as not to delay the progress of the Trade Contract Work or other work related to the Project. The Trade Contractor shall give proper notice to the Construction Manager and to all required parties of such tests, approvals and inspections. If feasible, the Owner and Others may timely observe the tests at the normal place of testing. Except as provided in subsection 3.6.3, the Owner shall bear all expenses associated with tests, inspections and approvals required by the Trade Contract Documents, which, unless otherwise agreed to, shall be conducted by an independent testing laboratory or entity retained by the Owner. Unless otherwise required by the Trade Contract Documents, required certificates of testing, approval or inspection shall be secured by the Trade Contractor and promptly delivered to the Owner and Construction Manager.

**3.6.2** If the Owner, Construction Manager or appropriate authorities determine that tests, inspections or approvals in addition to those required by the Trade Contract Documents will be necessary, the Trade Contractor shall arrange for the procedures and give timely notice to the Owner, Construction Manager and Others who may observe the procedures. Costs of the additional tests, inspections or approvals are at the Owner's expense except as provided in subsection 3.6.3.

**3.6.3** If the procedures described in subsections 3.6.1 and 3.6.2 indicate that portions of the Trade Contract Work fail to comply with the Trade Contract Documents, the Trade Contractor shall be responsible for costs of correction and retesting.

### 3.7 WARRANTY

3.7.1 The Trade Contract Work shall be executed in accordance with the Trade Contract Documents in a workmanlike manner. The Trade Contractor warrants that all materials and equipment shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Trade Contract Work and shall be new unless otherwise specified, of good quality, in conformance with the Trade Contract Documents, and free from defective workmanship and materials. At the Owner's or Construction Manager's request, the Trade Contractor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. The Trade Contractor further warrants that the Trade Contract Work shall be free from material defects not intrinsic in the design or materials required in the Trade Contract Documents. The Trade Contractor's warranty does not include remedies for defects or damages caused by normal wear and tear during normal usage, use for a purpose for which the Project was not intended, improper or insufficient maintenance, modifications performed by the Owner or Others, or abuse. The Trade Contractor's warranty pursuant to this section shall commence on the Date of Substantial Completion.

3.7.2 The Trade Contractor shall obtain from its Subcontractors and material suppliers any special or extended warranties required by the Trade Contract Documents. All such warranties shall be listed in an attached Exhibit to this Agreement.

### 3.8 CORRECTION OF TRADE CONTRACT WORK WITHIN ONE YEAR

3.8.1 If, prior to Substantial Completion and within one year after the date of Substantial Completion of the Trade Contract Work, any Defective Work is found, the Owner shall promptly notify the Trade Contractor in writing. Unless the Owner provides written acceptance of the condition, the Trade Contractor shall promptly correct the Defective Work at its own cost and time and bear the expense of additional services required for correction of any Defective Work for which it is responsible. If within the one-year correction period the Owner discovers and does not promptly notify the Trade Contractor or give the Trade Contractor an opportunity to test or correct Defective Work as reasonably requested by the Trade Contractor, the Owner waives the Trade Contractor's obligation to correct that Defective Work as well as the Owner's right to claim a breach of the warranty with respect to that Defective Work.

3.8.2 With respect to any portion of Trade Contract Work first performed after Substantial Completion, the one-year correction period shall be extended by the period of time between Substantial Completion and the actual performance of the later Trade Contract Work. Correction periods shall not be extended by corrective work performed by the Trade Contractor.

3.8.3 If the Trade Contractor fails to correct Defective Work within a reasonable time after receipt of written notice from the Owner prior to final payment, the Owner may correct it in accordance with the Owner's right to carry out the Trade Contract Work in section 11.2. In such case, an appropriate Trade Contract Change Order shall be issued deducting the cost of correcting such deficiencies from payments then or thereafter due the Trade Contractor. If payments then or thereafter due Trade Contractor are not sufficient to cover such amounts, the Trade Contractor shall pay the difference to the Owner.

3.8.4 If after the one-year correction period but before the applicable limitation period the Owner discovers any Defective Work, the Owner shall, unless the Defective Work requires emergency correction, promptly notify the Trade Contractor. If the Trade Contractor elects to correct the Defective Work, it shall provide written notice of such intent within fourteen (14) Days of its receipt of notice from the Owner. The Trade Contractor shall complete the correction of Defective Work within a time frame mutually agreed upon by the Trade Contractor and the Owner. If the Trade Contractor does not elect to correct the Defective Work, the Owner may have the Defective Work corrected by itself or Others and charge the Trade Contractor for the reasonable cost of the correction and other directly related

expenses. Owner shall provide Trade Contractor with an accounting of correction costs it incurs.

3.8.5 If the Trade Contractor's correction or removal of Defective Work causes damage to or destroys other completed or partially completed Work or existing buildings, the Trade Contractor shall be responsible for the cost of correcting the destroyed or damaged property.

3.8.6 The one-year period for correction of Defective Work does not constitute a limitation period with respect to the enforcement of the Trade Contractor's other obligations under the Trade Contract Documents.

3.8.7 Prior to final payment, at the Owner's option and with the Trade Contractor's agreement, the Owner may elect to accept Defective Work rather than require its removal and correction. In such case the Contract Price shall be equitably adjusted for any diminution in the value of the Project caused by such Defective Work. Before the Owner accepts any such change it must be documented in writing with a Change Order signed by both the Trade Contractor and Owner.

### 3.9 CORRECTION OF COVERED TRADE CONTRACT WORK

3.9.1 On request of the Owner or Construction Manager, Trade Contract Work that has been covered without a requirement that it be inspected prior to being covered may be uncovered for the Owner's or Construction Manager's inspection. The Owner shall pay for the costs of uncovering and replacement if the Work proves to be in conformance with the Trade Contract Documents, or if the defective condition was caused by the Owner or Others. If the uncovered Trade Contract Work proves to be defective, the Trade Contractor shall pay the costs of uncovering and replacement.

3.9.2 If contrary to specific requirements in the Trade Contract Documents or contrary to a specific request from the Owner or Construction Manager, a portion of the Trade Contract Work is covered, the Owner or Construction Manager, by written request, may require the Trade Contractor to uncover the Trade Contract Work for the Owner's or Construction Manager's observation. In this circumstance the Trade Contract Work shall be uncovered and recovered at the Trade Contractor's expense and with no adjustment to the Trade Contract Time. Costs incurred by the Owner as a direct result of the above shall be deducted from the Trade Contract Price.

### 3.10 SAFETY OF PERSONS AND PROPERTY

3.10.1 SAFETY PRECAUTIONS AND PROGRAMS The Trade Contractor shall have overall responsibility for safety precautions and programs in the performance of the Trade Contract Work. While this section establishes the responsibility for safety between the Owner and Trade Contractor, it does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with the provisions of applicable laws and regulations.

3.10.2 The Trade Contractor shall seek to avoid injury, loss or damage to persons or property by taking reasonable steps to protect:

3.10.2.1 its employees and other persons at the Worksite;

3.10.2.2 materials and equipment stored at on-site or off-site locations for use in the Trade Contract Work; and

3.10.2.3 property located at the site and adjacent to Trade Contract Work areas, whether or not the property is part of the Trade Contract Work.

3.10.3 TRADE CONTRACTOR'S SAFETY REPRESENTATIVE The Trade Contractor's Worksite Safety Representative is who shall act as the Trade Contractor's authorized safety representative with a duty

to prevent accidents in accordance with subsection 3.10.2 If no individual is identified in this section, the authorized safety representative shall be the Trade Contractor's Representative. The Trade Contractor shall report immediately in writing to the Owner and Construction Manager all recordable accidents and injuries occurring at the Worksite. When the Trade Contractor is required to file an accident report with a public authority, the Trade Contractor shall furnish a copy of the report to the Owner and Construction Manager.

3.10.4 The Trade Contractor shall provide the Owner and Construction Manager with copies of all notices required of the Trade Contractor by law or regulation. The Trade Contractor's safety program shall comply with the requirements of governmental and quasi-governmental authorities having jurisdiction.

3.10.5 Damage or loss not insured under property insurance which may arise from the Trade Contract Work, to the extent caused by the negligent acts or omissions of the Trade Contractor, or anyone for whose acts the Trade Contractor may be liable, shall be promptly remedied by the Trade Contractor.

3.10.6 If the Owner or Construction Manager deems any part of the Trade Contract Work or Worksite unsafe, the Owner or Construction Manager, without assuming responsibility for the Trade Contractor's safety program, may require the Trade Contractor to stop performance of the Trade Contract Work or take corrective measures satisfactory to the Owner, or both. If the Trade Contractor does not adopt corrective measures, the Owner may perform them and deduct their cost from the Trade Contract Price. The Trade Contractor agrees to make no claim for damages, for an increase in the Trade Contract Price or for a change in the Trade Contract Time based on the Trade Contractor's compliance with the Owner's or Construction Manager's reasonable request.

### 3.11 EMERGENCIES

3.11.1 In an emergency, the Trade Contractor shall act in a reasonable manner to prevent personal injury or property damage. Any change in the Trade Contract Price or Trade Contract Time resulting from the actions of the Trade Contractor in an emergency situation shall be determined as provided in ARTICLE 8.

### 3.12 HAZARDOUS MATERIALS

3.12.1 The Trade Contractor shall not be obligated to commence or continue Trade Contract Work until any Hazardous Material discovered at the Worksite has been removed, rendered or determined to be harmless by the Owner as certified by an independent testing laboratory and approved by the appropriate government agency.

3.12.2 If after the commencement of the Trade Contract Work a Hazardous Material is discovered at the Worksite, the Trade Contractor shall be entitled to immediately stop Trade Contract Work in the affected area. The Trade Contractor shall report the condition to the Owner, the Construction Manager, and, if required, the government agency with jurisdiction.

3.12.3 The Trade Contractor shall not be required to perform any Trade Contract Work relating to or in the area of Hazardous Material without written mutual agreement.

3.12.4 The Owner shall be responsible for retaining an independent testing laboratory to determine the nature of the Hazardous Material encountered and whether the material requires corrective measures or remedial action. Such measures shall be the sole responsibility of the Owner, and shall be performed in a manner minimizing any adverse effects upon the Trade Contract Work. The Trade Contractor shall resume Trade Contract Work in the area affected by any Hazardous Material only upon written agreement between the Parties after the Hazardous Material has been removed or rendered harmless.

and only after approval, if necessary, of the governmental agency with jurisdiction.

3.12.5 If the Trade Contractor incurs additional costs or is delayed due to the presence or remediation of Hazardous Material, the Trade Contractor shall be entitled to an equitable adjustment in the Trade Contract Price or the Trade Contract Time.

3.12.6 To the extent not caused by the negligent acts or omissions of the Trade Contractor, its Subcontractors and Sub-subcontractors, and the agents, officers, directors and employees of each of them, the Owner shall defend, indemnify and hold harmless the Trade Contractor, its Subcontractors and Sub-subcontractors, and the agents, officers, directors and employees of each of them, from and against any and all direct claims, damages, losses, costs and expenses, including but not limited to attorney's fees, costs and expenses incurred in connection with any dispute resolution process, to the extent permitted pursuant to section 6.6, arising out of or relating to the performance of the Trade Contract Work in any area affected by Hazardous Material. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

### 3.12.7 MATERIALS BROUGHT TO THE WORKSITE

3.12.7.1 Material Safety Data (MSD) sheets as required by law and pertaining to materials or substances used or consumed in the performance of the Trade Contract Work, whether obtained by the Trade Contractor, Subcontractors, the Owner or Others, shall be maintained at the Worksite by the Trade Contractor and made available to the Owner, Construction Manager, Subcontractors and Others.

3.12.7.2 The Trade Contractor shall be responsible for the proper delivery, handling, application, storage, removal and disposal of all materials and substances brought to the Worksite by the Trade Contractor in accordance with the Trade Contract Documents and used or consumed in the performance of the Trade Contract Work.

3.12.7.3 The Trade Contractor shall indemnify and hold harmless the Owner, Construction Manager, their agents, officers, directors and employees, from and against any and all claims, damages, losses, costs and expenses, including but not limited to attorney's fees, costs and expenses incurred in connection with any dispute resolution procedure, arising out of or relating to the delivery, handling, application, storage, removal and disposal of all materials and substances brought to the Worksite by the Trade Contractor in accordance or not in accordance with the Trade Contract Documents. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

3.12.8 The terms of this section shall survive the completion of the Trade Work or any termination of this Agreement.

### 3.13 SUBMITTALS

3.13.1 The Trade Contractor shall submit to the Construction Manager, and the Design Professional, for review and approval all shop drawings, samples, product data and similar submittals required by the Trade Contract Documents. Submittals may be submitted in electronic form if required in accordance with ConsensusDocs 200.2 and subsection 4.4.1. The Trade Contractor shall be responsible to the Owner for the accuracy and conformity of its submittals to the Trade Contract Documents. The Trade Contractor shall prepare and deliver its submittals in a manner consistent with the Construction Schedule and in such time and sequence so as not to delay the performance of the Trade Contract Work or the work of the Owner and Others. When the Trade Contractor delivers its submittals the Trade Contractor shall identify in writing for each submittal all changes, deviations or substitutions from the requirements of the Trade Contract Documents. The review and approval of any Trade Contractor

submittal shall not be deemed to authorize changes, deviations or substitutions from the requirements of the Trade Contract Documents unless express written approval is obtained from the Owner specifically authorizing such deviation, substitution or change. To the extent a change, deviation or substitution causes an impact to the Contract Price or Contract Time, such approval shall be promptly memorialized in a Change Order. Further, the Construction Manager and Design Professional shall not make any change, deviation or substitution through the submittal process without specifically identifying and authorizing such deviation to the Trade Contractor. In the event that the Trade Contract Documents do not contain submittal requirements pertaining to the Trade Contract Work, the Trade Contractor agrees upon request to submit in a timely fashion to the Construction Manager and the Design Professional for review and approval any shop drawings, samples, product data, manufacturers' literature or similar submittals as may reasonably be required by the Owner, Construction Manager, or Design Professional.

3.13.2 The Owner shall be responsible for review and approval of submittals with reasonable promptness to avoid causing delay.

3.13.3 The Trade Contractor shall perform all Trade Contract Work strictly in accordance with approved submittals. Approval of shop drawings is not authorization to Trade Contractor to perform Changed Work, unless the procedures of ARTICLE 8 are followed. Approval does not relieve the Trade Contractor from responsibility for Defective Work resulting from errors or omissions of any kind on the approved Shop Drawings.

3.13.4 Record copies of the following, incorporating field changes and selections made during construction, shall be maintained by the Trade Contractor at the Project site and available to the Owner upon request: drawings, specifications, addenda, Trade Contract Change Order and other modifications, and required submittals including product data, samples and shop drawings.

3.13.5 No substitutions shall be made in the Trade Contract Work unless permitted in the Trade Contract Documents and then only after the Trade Contractor obtains approvals required under the Trade Contract Documents for substitutions. All such substitutions shall be promptly memorialized in a Change Order no later than seven (7) Days following approval by the Owner and, if applicable, provide for an adjustment in the Contract Price or Contract Time.

3.13.6 The Trade Contractor shall prepare and submit to the Construction Manager for submission to the Owner

(Check one only)

- final marked up as-built drawings
- updated electronic data, in accordance with ConsensusDocs 200.2 and section 4.4.1
- such documentation as defined by the Parties by attachment to this Agreement,

in general documenting how the various elements of the Trade Contract Work were actually constructed or installed.

### 3.14 PROFESSIONAL SERVICES

3.14.1 The Trade Contractor may be required to procure professional services in order to carry out its responsibilities for construction means, methods, techniques, sequences and procedures for such services specifically called for by the Contract Documents. The Trade Contractor shall obtain these professional services and any design certifications required from State of Iowa licensed design professionals. All drawings, specifications, calculations, certifications and submittals prepared by such

design professionals shall bear the signature and seal of such design professionals and the Owner and the Design Professional shall be entitled to rely upon the adequacy, accuracy and completeness of such design services. If professional services are specifically required by the Contract Documents, the Owner shall indicate all required performance and design criteria. The Trade Contractor shall not be responsible for the adequacy of such performance and design criteria. The Trade Contractor shall not be required to provide such services in violation of existing laws, rules and regulations in the jurisdiction where the Project is located.

### 3.15 WORKSITE CONDITIONS

3.15.1 WORKSITE VISIT The Trade Contractor acknowledges that it has visited, or has had the opportunity to visit, the Worksite to visually inspect the general and local conditions which could affect the Trade Contract Work.

3.15.2 CONCEALED OR UNKNOWN SITE CONDITIONS If the conditions at the Worksite are (a) subsurface or other concealed physical conditions which are materially different from those indicated in the Trade Contract Documents, or (b) unusual and unknown physical conditions which are materially different from conditions ordinarily encountered and generally recognized as inherent in Trade Contract Work provided for in the Trade Contract Documents, the Trade Contractor shall stop Trade Contract Work and give immediate written notice of the condition to the Owner, Construction Manager and the Design Professional. The Trade Contractor shall not be required to perform any work relating to the unknown condition without the written mutual agreement of the Parties. Any change in the Contract Price or the Contract Time as a result of the unknown condition shall be determined as provided in this article. The Trade Contractor shall provide the Owner and the Construction Manager with written notice of any claim as a result of unknown conditions within the time period set forth in section 8.4.

### 3.16 PERMITS AND TAXES

3.16.1 Trade Contractor shall give public authorities all notices required by law and, except for permits and fees which are the responsibility of the Owner pursuant to section 4.2, shall obtain and pay for all necessary permits, licenses and renewals pertaining to the Trade Contract Work. Trade Contractor shall provide to Owner copies of all notices, permits, licenses and renewals required under this Agreement.

3.16.2 Trade Contractor shall pay all applicable taxes legally enacted when bids are received or negotiations concluded for the Trade Contract Work provided by the Trade Contractor.

3.16.3 The Contract Price or Contract Time shall be equitably adjusted by Trade Contract Change Order for additional costs resulting from any changes in laws, ordinances, rules and regulations enacted after the date of this Agreement, including increased taxes.

3.16.3 (Deleted)

### 3.17 CUTTING, FITTING AND PATCHING

3.17.1 The Trade Contractor shall perform cutting, fitting and patching necessary to coordinate the various parts of the Trade Contract Work and to prepare its Trade Contract Work for the work of the Owner or Others.

3.17.2 Cutting, patching or altering the work of the Owner or Others shall be done with the prior written approval of the Owner. Such approval shall not be unreasonably withheld.

### 3.18 CLEANING UP

3.18.1 The Trade Contractor shall regularly remove debris and waste materials at the Worksite resulting

from the Trade Contract Work. Prior to discontinuing Trade Contract Work in an area, the Trade Contractor shall clean the area and remove all rubbish and its construction equipment, tools, machinery, waste and surplus materials. The Trade Contractor shall minimize and confine dust and debris resulting from construction activities. At the completion of the Trade Contract Work, the Trade Contractor shall remove from the Worksite all construction equipment, tools, surplus materials, waste materials and debris.

3.18.2 If the Trade Contractor fails to commence compliance with cleanup duties within two (2) business Days after written notification from the Owner or the Construction Manager of noncompliance, the Owner may implement appropriate cleanup measures without further notice and the cost shall be deducted from any amounts due or to become due the Trade Contractor in the next payment period.

3.19 ACCESS TO TRADE CONTRACT WORK The Trade Contractor shall facilitate the access of the Owner, Construction Manager, Design Professional and Others to Trade Contract Work in progress.

3.20 COST MONITORING The Trade Contractor shall provide the Construction Manager with cost monitoring information appropriate for the manner of Trade Contractor's compensation, to enable the Construction Manager to develop and track construction and project budgets, including amounts for work in progress, uncompleted work and proposed changes.

3.21 ROYALTIES, PATENTS AND COPYRIGHTS The Trade Contractor shall pay all royalties and license fees which may be due on the inclusion of any patented or copyrighted materials, methods or systems selected by the Trade Contractor and incorporated in the Trade Contract Work. The Trade Contractor shall defend, indemnify and hold the Owner harmless from all suits or claims for infringement of any patent rights or copyrights arising out of such selection. The Owner agrees to indemnify and hold the Trade Contractor harmless from any suits or claims of infringement of any patent rights or copyrights arising out of any patented or copyrighted materials, methods or systems specified by the Owner, Construction Manager and Design Professional. To the extent portions of this paragraph are in conflict with SF 396 (codified at Iowa Code Section 537A.5) said portions are void and unenforceable.

3.22 CONFIDENTIALITY The Owner shall treat as confidential information all of the Trade Contractor's estimating systems and historical and parameter cost data that may be disclosed to the Owner in connection with the performance of this Agreement if they are specified and marked as confidential and shall mark them. If a document is not marked as "Confidential" it will not be treated as such. Nothing contained herein, however, shall be interpreted in a manner that modifies or is in conflict with the purpose and application of the open records laws contained in the Code of Iowa.

## ARTICLE 4 OWNER'S RESPONSIBILITIES

### 4.1 INFORMATION SERVICES

4.1.1 FULL INFORMATION Any information or services to be provided by the Owner shall be provided in a timely manner so as not to delay the Trade Contract Work.

4.1.2 FINANCIAL INFORMATION Upon the written request of the Trade Contractor, the Owner shall provide the Trade Contractor with evidence of Project financing. If requested in writing, evidence of such financing shall be a condition precedent to the Trade Contractor's commencing or continuing the Trade Contract Work. The Trade Contractor shall be notified by the Owner prior to any material change in Project financing.

4.1.3 WORKSITE INFORMATION Except to the extent that the Trade Contractor knows of any inaccuracy, the Trade Contractor is entitled to rely on Worksite information furnished by the Owner pursuant to this subsection. To the extent the Owner has obtained, or is required elsewhere in the

Trade Contract Documents to obtain, the following Worksite information, the Owner shall provide at the Owner's expense and with reasonable promptness:

4.1.3.1 information describing the physical characteristics of the site, including surveys, site evaluations, legal descriptions, data or drawings depicting existing conditions, subsurface conditions and environmental studies, reports and investigations;

4.1.3.2 tests, inspections and other reports dealing with environmental matters, Hazardous Material and other existing conditions, including structural, mechanical and chemical tests, required by the Trade Contract Documents or by law; and

4.1.3.3 any other information or services requested in writing by the Trade Contractor which are relevant to the Trade Contractor's performance of the Trade Contract Work and under the Owner's control. The information required by subsection 4.1.3 shall be provided in reasonable detail. Legal descriptions shall include easements, title restrictions, boundaries, and zoning restrictions. Worksite descriptions shall include existing buildings and other construction and all other pertinent site conditions. Adjacent property descriptions shall include structures, streets, sidewalks, alleys, and other features relevant to the Trade Contract Work. Utility details shall include available services, lines at the Worksite and adjacent and connection points. The information shall include public and private information, subsurface information, grades, contours, and elevations, drainage data, exact locations and dimensions, and benchmarks that can be used by the Trade Contractor in laying out the Trade Contract Work. The Trade Contractor shall in writing request from the Owner any information identified in Paragraph 4.1.3 that the Trade Contractor believes the Owner has obtained but has not provided to the Trade Contractor.

4.1.3.4 OWNER'S REPRESENTATIVE The Owner's representative is test. The Owner's representative shall have authority to bind the Owner in all matters relating to this Agreement including, without limitation, all matters requiring the Owner's approval, authorization or written notice. If the Owner changes its representative as listed above, the Owner shall notify the Trade Contractor in advance in writing. The Owner's Representative is also authorized to resolve disputes in accordance with Section 12.2 of this Agreement. The Construction Manager, while unauthorized to modify the Agreement or settle a dispute without the Owner's approval, however, does have the requisite authority to act as the Owner's agent throughout the construction of the Project in accordance with the contract between the Owner and the Construction Manager (ConsensusDOCS 801 as modified by the State of Iowa).

4.2 BUILDING PERMIT, FEES AND APPROVALS Except for those permits and fees related to the Trade Contract Work which are the responsibility of the Trade Contractor pursuant to subsection 3.16.1, the Owner shall secure and pay for all other permits, approvals, easements, assessments and fees required for the development, construction, use or occupancy of permanent structures or for permanent changes in existing facilities, including the building permit.

4.3 Deleted

4.4 TRADE CONTRACT DOCUMENTS Unless otherwise specified, Owner shall provide One (1) copies of the Trade Contract Documents to the Trade Contractor without cost. Additional copies will be provided to the Trade Contractor at cost. This paragraph is not intended to be in conflict with Iowa Code Section 26.3 requirement that a sufficient number of copies of the contract documents be made available to bidders without charge (but a deposit not to exceed \$250 per set may be required). If the Trade Contractor was required to make a deposit for a set of Trade Contract Documents for purposes of bidding then the Trade Contractor may elect to have the deposit returned instead of being provided with an additional copy.



4.4.1 DIGITIZED DOCUMENTS If the Owner requires that the Owner, Design Professional, Construction Manager and Trade Contractor exchange documents and data in electronic or digital form, prior to any such exchange, the Owner, Design Professional, Construction Manager and Trade Contractor shall agree on a written protocol governing all exchanges in ConsensusDocs 200.2 or a separate Agreement, which, at a minimum, shall specify: (a) the definition of documents and data to be accepted in electronic or digital form or to be transmitted electronically or digitally; (b) management and coordination responsibilities; (c) necessary equipment, software and services; (d) acceptable formats, transmission methods and verification procedures; (e) methods for maintaining version control; (f) privacy and security requirements; and (g) storage and retrieval requirements. Except as otherwise agreed to by the Parties in writing, the Parties shall each bear their own costs as identified in the protocol. In the absence of a written protocol, use of documents and data in electronic or digital form shall be at the sole risk of the recipient.

4.5 OWNER'S CUTTING AND PATCHING Cutting, patching or altering the Trade Contract Work by the Owner or Others shall be done with the prior written approval of the Trade Contractor, which approval shall not be unreasonably withheld.

4.6 OWNER'S RIGHT TO CLEAN UP In case of a dispute between the Trade Contractor and Others with regard to respective responsibilities for cleaning up at the Worksite, the Owner may implement appropriate cleanup measures after two (2) business Days' notice and allocate the cost among those responsible during the following pay period.

4.7 COST OF CORRECTING DAMAGED OR DESTROYED WORK With regard to damage or loss attributable to the acts or omissions of the Owner or Others and not to the Trade Contractor, the Owner may either (a) promptly remedy the damage or loss or (b) accept the damage or loss. If the Trade Contractor incurs additional costs or is delayed due to such loss or damage, the Trade Contractor shall be entitled to an equitable adjustment in the Trade Contract Price or Trade Contract Time.

## ARTICLE 5 SUBCONTRACTS

5.1 SUBCONTRACTORS The Trade Contract Work not performed by the Trade Contractor with its own forces shall be performed by Subcontractors.

### 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE TRADE CONTRACT WORK

5.2.0 The Trade Contractor must identify all Subcontractors and suppliers within 48 hours of the published date and time for which bids must be submitted, in accordance with Iowa Code Section 8A.311, as amended by House File 646 in 2011. Subcontractors and suppliers may not be changed without the approval of the Owner. Requests for changing a Subcontractor or supplier must identify the reason for the proposed change, the name of the new Subcontractor or supplier, and the change in the subcontractor or supplier price as a result of the change. Any reduction in subcontractor or supplier price as a result of the change, if the change is approved by the Owner, shall be deducted from the Trade Contract Price via a deductive Change Order. Any such changes, if approved by the Owner, which result in an increase in the Trade Contract Price shall be borne by the Trade Contractor.

5.2.1 If the Owner has a reasonable objection to any proposed subcontractor or material supplier, the Owner shall notify the Trade Contractor in writing.

5.2.2 If the Owner has reasonably and promptly objected as provided in subsection 5.2.1, the Trade Contractor shall not contract with the proposed subcontractor or material supplier, and the Trade Contractor shall propose another Subcontractor acceptable to the Owner. To the extent the substitution results in an increase or decrease in the Trade Contract Price or Trade Contract Time, an appropriate

Trade Contract Change Order shall be issued as provided in ARTICLE 8.

5.3 BINDING OF SUBCONTRACTORS The Trade Contractor agrees to bind every Subcontractor (and require every Subcontractor to so bind its subcontractors) to all the provisions of this Agreement and the Trade Contract Documents as they apply to the Subcontractor's portion of the Trade Contract Work.

5.4 Deleted

#### 5.5 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.5.1 If this Agreement is terminated, each subcontract agreement shall be assigned by the Trade Contractor to the Owner, subject to the prior rights of any surety, provided that:

5.5.1.1 this Agreement is terminated by the Owner pursuant to sections 11.3 or 11.4; and

5.5.1.2 the Owner accepts such assignment after termination by notifying the Subcontractor and Trade Contractor in writing, and assumes all rights and obligations of the Contractor pursuant to each subcontract agreement.

5.5.2 If the Owner accepts such an assignment, and the Work has been suspended for more than thirty (30) consecutive Days, following termination, if appropriate, the Subcontractor's compensation shall be equitably adjusted as a result of the suspension.

### ARTICLE 6 TRADE CONTRACT TIME

#### 6.1 PERFORMANCE OF THE TRADE CONTRACT WORK

6.1.1 DATE OF COMMENCEMENT The Date of Commencement is the date of Owner's written notice to proceed unless otherwise set forth below:

6.1.2 TIME Substantial Completion of the Trade Contract Work shall be achieved in xxx (xx) Days from the Date of Commencement. Unless otherwise specified in the Certificate of Substantial Completion, the Trade Contractor shall achieve Final Completion within 30 Days after the date of Substantial Completion, subject to adjustments as provided for in the Trade Contract Documents.

6.1.3 Time limits stated above are of the essence of this Agreement.

6.1.4 Unless instructed by the Owner in writing, the Trade Contractor shall not knowingly commence the Trade Contract Work before the effective date of insurance to be provided by the Trade Contractor and Owner as required by the Trade Contract Documents.

6.2 CONSTRUCTION SCHEDULE Prior to the commencement of the construction of the Trade Contract Work, the Trade Contractor shall submit a copy of its critical path method (CPM) construction schedule showing the completion of the Trade Contract Work within the allowable number of days identified above. The Trade Contractor shall regularly update its CPM construction schedule for the Trade Contract Work and promptly furnish the Construction Manager on an ongoing basis scheduling information requested by the Construction Manager for the Trade Contract Work. In consultation with the Trade Contractor, the Construction Manager shall incorporate the Trade Contract Work and work of other trade contractors into an overall Construction Schedule for the entire Project. The Trade Contractor shall be bound by the Construction. Nothing in this Trade Contractor Agreement shall relieve the Trade Contractor of any liability for any unexcused failure to comply with its original schedule, the Construction Schedule, or any completion dates. The Construction Manager shall have the right to coordinate the Trade Contractors, including the right, if necessary, to change the time, order and priority in which the various portions of the Trade Contract Work and the other work associated with the Project shall be performed.

## 6.3 DELAYS AND EXTENSIONS OF TIME

6.3.1 If the Trade Contractor is delayed at any time in the commencement or progress of the Work by any cause beyond the control of the Trade Contractor, the Trade Contractor shall be entitled to an equitable extension of the Trade Contract Time if the Trade Contractor is able to show that the critical path of the Trade Contract Work was delayed by causes beyond the control of the Trade Contractor. Examples of causes beyond the control of the Trade Contractor include, but are not limited to, the following: acts or omissions of the Owner, the Design Professional, Construction Manager or Others; changes in the Work or the sequencing of the Work ordered by the Owner, or arising from decisions of the Owner that impact the time of performance of the Work; transportation delays not reasonably foreseeable; labor disputes not involving the Trade Contractor; general labor disputes impacting the Project but not specifically related to the Worksite; fire; terrorism, epidemics, adverse governmental actions, unavoidable accidents or circumstances; adverse weather conditions not reasonably anticipated; encountering Hazardous Materials; concealed or unknown conditions; delay authorized by the Owner pending dispute resolution; and suspension by the Owner under section 11.1. The Trade Contractor shall submit any requests for equitable extensions of Contract Time in accordance with the provisions of ARTICLE 8.

6.3.2 In addition, if the Trade Contractor is able to show that it incurred additional costs because the critical path of the Trade Contract Work was delayed by acts or omissions of the Owner, the Design Professional, Construction Manager or Others, changes in the Work or the sequencing of the Work ordered by the Owner, or arising from decisions of the Owner that impact the time of performance of the Work, encountering Hazardous Materials, or concealed or unknown conditions, delay authorized by the Owner pending dispute resolution or suspension by the Owner under section 11.1, then the Trade Contractor shall be entitled to an equitable adjustment in the Trade Contract Price subject to section 6.6.

6.3.3 NOTICE OF DELAYS In the event delays to the Trade Contract Work are encountered for any reason, the Trade Contractor shall provide prompt written notice to the Owner and the Construction Manager of the cause of such delays after Trade Contractor first recognizes the delay. The Owner and Trade Contractor agree to undertake reasonable steps to mitigate the effect of such delays.

6.4 NOTICE OF DELAY CLAIMS If the Trade Contractor believes it is due an equitable extension of Trade Contract Time or an equitable adjustment in Trade Contract Price as a result of a delay described in subsection 6.3.1, the Trade Contractor shall give the Owner and the Construction Manager written notice of the claim in accordance with section 8.4. If the Trade Contractor causes delay in the completion of the Trade Contract Work, the Owner shall be entitled to recover its additional costs subject to subsection 6.6. The Owner shall process any such claim against the Trade Contractor in accordance with ARTICLE 8.

## 6.5 LIQUIDATED DAMAGES

6.5.1 SUBSTANTIAL COMPLETION The Owner and the Trade Contractor agree that this Agreement  shall /  shall not (indicate one) provide for the imposition of liquidated damages based on the Date of Substantial Completion.

6.5.1.1 The Trade Contractor understands that if the Date of Substantial Completion established by this Agreement, as may be amended by subsequent Trade Change Order, is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Trade Contractor agrees that if the Date of Substantial Completion is not attained the Trade Contractor shall pay the Owner Zero Dollars and No Cents (\$0.00) as liquidated damages and not as a penalty for each day that Substantial Completion extends beyond the Date of Substantial Completion. The liquidated damages provided herein shall be in lieu of all liability for any and all

extra costs, losses, expenses, claims, penalties and any other damages of whatsoever nature incurred by the Owner which are occasioned by any delay in achieving the Date of Substantial Completion.

6.5.2 FINAL COMPLETION The Owner and the Trade Contractor agree that this Agreement  shall /  shall not (indicate one) provide for the imposition of liquidated damages based on the Date of Final Completion.

6.5.2.1 The Trade Contractor understands that if the Date of Final Completion established by this Agreement, as may be amended by subsequent Trade Change Order is not attained, the Owner will suffer damages which are difficult to determine and accurately specify. The Trade Contractor agrees that if the Date of Final Completion is not attained the Trade Contractor shall pay the Owner Zero Dollars and No Cents (\$0.00) as liquidated damages and not as a penalty for each day that Final Completion extends beyond the Date of Final Completion. The liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages of whatsoever nature incurred by the Owner which are occasioned by any delay in achieving the Date of Final Completion.

6.5.3 OTHER LIQUIDATED DAMAGES The Owner and the Trade Contractor may agree upon the imposition of liquidated damages based on other project milestones or performance requirements. Such agreement shall be included as an exhibit to this Agreement.

6.6 LIMITED MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES Except for damages mutually agreed upon by the Parties as liquidated damages in Section 6.5 and excluding losses covered by insurance required by the Trade Contract Documents, the Owner and the Trade Contractor agree to waive all claims against each other for any consequential damages that may arise out of or relate to this Agreement, except for those specific items of damages excluded from this waiver as mutually agreed upon by the Parties and identified below. The Owner agrees to waive damages including but not limited to the Owner's loss of use of the Project, any rental expenses incurred, loss of income, profit or financing related to the Project, as well as the loss of business, loss of financing, principal office overhead and expenses, loss of profits not related to this Project, loss of reputation, or insolvency. The Trade Contractor agrees to waive damages including but not limited to loss of business, loss of financing, principal office overhead and expenses, loss of profits not related to this Project, loss of bonding capacity, loss of reputation, or insolvency. The provisions of this section shall also apply to the termination of this Agreement and shall survive such termination.

6.6.1 The following items of damages are excluded from this mutual waiver: The provisions of this section shall also apply to the termination of this Agreement and shall survive such termination. The Owner and the Trade Contractor shall require similar waivers in contracts with Subcontractors and Others retained for the Project.

## ARTICLE 7 TRADE CONTRACT PRICE

7.1 LUMP SUM As full compensation for performance by the Trade Contractor of the Work in conformance with the Contract Documents, the Owner shall pay the Trade Contractor the lump sum price of: XX dollars and XX cents (\$XX.XX). The lump sum price is hereinafter referred to as the Trade Contract Price, which shall be subject to increase or decrease as provided in article 8.

Lump Sum Price includes Base Bid of \$X.XX and Alternate #XX for {alternate description} for \$X.XX for a total Lump Sum Price of \$X.XX.

### 7.2 ALLOWANCES

7.2.1 All allowances stated in the Trade Contract Documents shall be included in the Trade Contract Price. The Owner shall select allowance items in a timely manner so as not to delay the Trade Contract

Work.

7.2.2 Allowances shall include the costs of materials, supplies and equipment delivered to the Worksite, less applicable trade discounts and including requisite taxes, unloading and handling at the Worksite, and labor and installation, unless specifically stated otherwise. The Trade Contractor's Overhead and profit for the allowances shall be included in the Trade Contract Price, but not in the allowances. The Trade Contract Price shall be adjusted by Trade Contract Change Order to reflect the actual costs when they are greater than or less than the allowances.

## ARTICLE 8 CHANGES

Changes in the Trade Contract Work that are within the general scope of this Agreement shall be accomplished, without invalidating this Agreement, by Trade Contract Change Order, and Trade Contract Interim Directed Change.

### 8.1 TRADE CHANGE ORDER

8.1.1 The Owner may order or the Trade Contractor may request changes in the Trade Contract Work or the timing or sequencing of the Trade Contract Work that impacts the Trade Contract Price or the Trade Contract Time. All such changes in the Trade Contract Work that affect Trade Contract Time or Trade Contract Price shall in the form of a Trade Contract Change Order. Any such requests for a change in the Trade Contract Price or the Trade Contract Time shall be processed in accordance with this article 8. Trade Contract Change Orders shall be executed on the ConsensusDOCS 813 - Trade Contract Change Order (CM as Owner's Agent) with attachments as necessary.

8.1.2 The Owner, with the assistance of the Construction Manager, and the Trade Contractor shall negotiate in good faith an appropriate adjustment to the Trade Contract Price or the Trade Contract Time and shall conclude these negotiations as expeditiously as possible. Acceptance of the Trade Contract Change Order and any adjustment in the Trade Contract Price or Trade Contract Time shall not be unreasonably withheld.

### 8.2 TRADE CONTRACT INTERIM DIRECTED CHANGE

8.2.1 The Construction Manager may issue a written Trade Contract Interim Directed Change signed by the Owner directing a change in the Trade Contract Work prior to reaching agreement with the Trade Contractor on the adjustment, if any, in the Trade Contract Price or the Trade Contract Time.

8.2.2 The Owner, with the assistance of the Construction Manager, and the Trade Contractor shall negotiate expeditiously and in good faith for appropriate adjustments, as applicable, to the Trade Contract Price or the Trade Contract Time arising out of a Trade Contract Interim Directed Change. As the Trade Contract Changed Work is performed, the Trade Contractor shall submit its costs for such work with its application for payment beginning with the next application for payment within thirty (30) Days of the issuance of the Trade Contract Interim Directed Change. If there is a dispute as to the cost to the Owner, the Trade Contractor shall continue to perform the Trade Contract Changed Work set forth in the Trade Contract Interim Directed Change and the Owner shall pay the requirements Trade Contractor the Cost of the Work, defined in 8.3.1.3 below upon receipt of an application for payment and the Owner's (and the Architect's and construction manger's) determination that the work has been completed. The Parties reserve their rights as to the disputed amount, subject to the requirements ARTICLE 12.

8.2.3 When the Owner and the Trade Contractor agree upon the adjustment in the Trade Contract Price or the Trade Contract Time, for a change in the Trade Contract Work directed by a Trade Contract Interim Directed Change, such agreement shall be the subject of a Trade Contract Change Order. The

Trade Contract Change Order shall include all outstanding Trade Contract Interim Directed Changes on which the Owner and Trade Contractor have reached agreement on Contract Price or Contract Time issued since the last Trade Contract Change Order.

### 8.3 DETERMINATION OF COST

8.3.1 An increase or decrease in the Trade Contract Price or the Trade Contract Time resulting from a change in the Trade Contract Work shall be determined by one or more of the following methods:

8.3.1.1 unit prices set forth in this Agreement or as subsequently agreed;

8.3.1.2 a mutually accepted, itemized lump sum;

8.3.1.3 **COST OF THE WORK** Cost of the Work as defined by this subsection plus 10.0 % for Overhead and 5.0 % for profit. "Cost of the Work" shall include the following costs reasonably incurred to perform a change in the Work

8.3.1.3.1 wages paid for labor in the direct employ of the Constructor in the performance of the Work;

8.3.1.3.2 salaries of the Trade Contractor's employees when stationed at the field office to the extent necessary to complete the applicable Work, employees engaged on the road expediting the production or transportation of material and equipment, and supervisory employees from the principal or branch office performing the functions listed below;

8.3.1.3.3 cost of applicable employee benefits and taxes, including but not limited to, workers' compensation, unemployment compensation, social security, health, welfare, retirement and other fringe benefits as required by law, labor agreements, or paid under the Trade Contractor's standard personnel policy, insofar as such costs are paid to employees of the Trade Contractor who are included in the Cost of the Work in subsections .1 and .2 immediately above;

8.3.1.3.4 reasonable transportation, travel, and hotel expenses of the Trade Contractor's personnel incurred in connection with the Work;

8.3.1.3.5 cost of all materials, supplies, and equipment incorporated in the Work, including costs of inspection and testing if not provided by the Owner, transportation, storage, and handling;

8.3.1.3.6 payments made by the Trade Contractor to Subcontractors for Work performed under this Agreement;

8.3.1.3.7 cost, including transportation and maintenance of all materials, supplies, equipment, temporary facilities, and hand tools not owned by the workers that are used or consumed in the performance of the Work, less salvage value or residual value; and cost less salvage value of such items used, but not consumed that remain the property of the Trade Contractor;

8.3.1.3.8 rental charges of all necessary machinery and equipment, exclusive of hand tools owned by workers, used at the Worksite, whether rented from the Trade Contractor or Others, including installation, repair and replacement, dismantling, removal, maintenance, transportation, and delivery costs. Rental from unrelated third parties shall be reimbursed at actual cost. Rentals from the Trade Contractor or its affiliates, subsidiaries, or related parties shall be reimbursed at the prevailing rates in the locality of the Worksite up to eighty-five percent (85%) of the value of the piece of equipment;

8.3.1.3.9 cost of the premiums for all insurance and surety bonds which the Trade Contractor is

required to procure or deems necessary, and approved by the Owner including any additional premium incurred as a result of any increase in the cost of the Work;

8.3.1.3.10 sales, use, gross receipts or other taxes, tariffs, or duties related to the Work for which the Trade Contractor is liable;

8.3.1.3.11 permits, fees, licenses, tests, and royalties;

8.3.1.3.12 reproduction costs, photographs, facsimile transmissions, long-distance telephone calls, data processing costs and services, postage, express delivery charges, data transmission, telephone service, and computer-related costs at the Worksite to the extent such items are used and consumed in the performance of the Work or are not capable of use after completion of the Work;

8.3.1.3.13 all water, power, and fuel costs necessary for the Work;

8.3.1.3.14 cost of removal of all nonhazardous substances, debris, and waste materials;

8.3.1.3.15 all costs directly incurred to perform a change in the Work which are reasonably inferable from the Contract Documents for the Changed Work;

8.3.1.3.16 DISCOUNTS All discounts for prompt payment shall accrue to the Owner to the extent such payments are made directly by the Owner. To the extent payments are made with funds of the Constructor, all cash discounts shall accrue to the Constructor. All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment, shall be credited to the Cost of the Work;

8.3.1.3.17 COST REPORTING The Trade Contractor shall maintain in conformance with generally accepted accounting principles a complete and current set of records that are prepared or used by the Trade Contractor to calculate the Cost of Work. The Owner and Construction Manager shall be afforded access to the Trade Contractor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda and similar data relating to requested payment for Cost of the Work. The Trade Contractor shall preserve all such records for a period of three years after the final payment or longer where required by law;

8.3.1.3.18 COST AND SCHEDULE ESTIMATES The Trade Contractor shall use reasonable skill and judgment in the preparation of a cost estimate or schedule for a change to the Work, but does not warrant or guarantee their accuracy

8.3.1.4 If an increase or decrease cannot be agreed to as set forth in Clauses .1 through .3 above, and the Owner or the Construction Manager issues a Trade Contract Interim Directed Change, the cost of the change in the Trade Contract Work shall be determined by the reasonable actual expense and savings of the performance of the Work resulting from the change. If there is a net increase in the Trade Contract Price, the Trade Contractor's Fee shall be adjusted accordingly. In case of a net decrease in the Trade Contract Price, the Trade Contractor's Fee shall not be adjusted unless ten percent (10%) or more of the Project is deleted. The Trade Contractor shall maintain a documented, itemized accounting evidencing the expenses and savings.

8.3.2 If unit prices are set forth in the Trade Contract Documents or are subsequently agreed to by the Parties, but the character or quantity of such unit items as originally contemplated is so different in a proposed Trade Change Order that the original unit prices will cause substantial inequity to the Owner or the Trade Contractor, such unit prices shall be equitably adjusted.

8.4 CLAIMS FOR ADDITIONAL COST OR TIME Except as provided in subsection 6.3.2 and section 6.4 for

any claim for an increase in the Trade Contract Price or the Trade Contract Time, the Trade Contractor shall give the Owner and the Construction Manager written notice of the claim within fourteen (14) Days after the occurrence giving rise to the claim or within fourteen (14) Days after the Trade Contractor first recognizes (or should have recognized) the condition giving rise to the claim, whichever is later. Except in an emergency, notice shall be given before proceeding with the Trade Contract Work. Thereafter, the Trade Contractor shall submit written documentation of its claim, including appropriate supporting documentation, within twenty-one (21) Days after giving notice, unless the Parties mutually agree upon a period of time. The Owner or Construction Manager shall respond in writing denying or approving the Trade Contractor's claim no later than fourteen (14) Days after receipt of the Trade Contractor's claim. Any change in the Trade Contract Price or the Trade Contract Time resulting from such claim shall be authorized by Trade Contract Change Order.

## ARTICLE 9 PAYMENT

9.1 GENERAL PROVISIONS Within fourteen (14) calendar Days from the date of execution of this Agreement, the Trade Contractor shall prepare and submit to the Construction Manager for approval a Schedule of Values apportioned to the various divisions or phases of the Trade Contract Work. Each line item contained in the Schedule of Values shall be assigned a monetary price such that the total of all such items shall equal the Trade Contract Price. The Schedule of Values shall be prepared in such detail and be supported by such documents and proof as may be required by the Construction Manager.

### 9.2 PROGRESS PAYMENTS

9.2.1 APPLICATIONS The Trade Contractor shall submit to the Construction Manager monthly notarized applications for payment. Trade Contractor's applications for payment shall be itemized and supported by the Trade Contractor's Schedule of Values and any other substantiating data as required by this Trade Contractor Agreement or requested by the Construction Manager or Design Professional. Payment applications may include payment requests on account of properly authorized Trade Contract Change Orders and Interim Directed Changes. The progress payment application shall include Trade Contract Work performed through the preceding calendar month. The Construction Manager will review the application and recommend to the Design professional and the Owner amounts payable by the Owner to the Trade Contractor. The Owner, in accordance with the determination of the Design Professional, shall pay the amount otherwise due on any payment application, less any amounts as set forth below, no later than thirty (30) calendar Days after the payment application, or portion thereof, is approved the Design Professional. The Owner may deduct, from any progress payment, such amounts as may be retained pursuant to subsection 9.2.4 below.

9.2.2 STORED MATERIALS AND EQUIPMENT Unless otherwise provided in the contract documents, applications for payment may include materials and equipment not yet incorporated into the Work but delivered to and suitably stored onsite or offsite including applicable insurance, storage and costs incurred transporting the materials to an offsite storage facility. Approval of payment applications for stored materials and equipment stored offsite shall be conditioned on submission by the Trade Contractor of bills of sale and proof of required insurance, or such other procedures satisfactory to the Owner to establish the proper valuation of the stored materials and equipment, the Owner's title to such materials and equipment, and to otherwise protect the Owner's interests therein, including transportation to the site.

### 9.2.3 CLAIM WAIVERS

9.2.3.1 PARTIAL CLAIMWAIVERS AND AFFIDAVITS As a prerequisite for payment, the Trade Contractor shall provide, in a form satisfactory to the Owner and the Construction Manager, partial claim waivers in the amount of the application for payment and affidavits from the Trade Contractor, and its Subcontractors, Material Suppliers for the completed Trade Contract Work.

Such waivers shall be effective upon payment. In no event shall the Trade Contractor be required to sign an unconditional waiver of claim, either partial or final, prior to receiving payment or in an amount in excess of what it has been paid.

9.2.4 **RETAINAGE** From each progress payment made to the Trade Contractor has the Owner shall retain FIVE (5) percent of the amount otherwise due after deduction of any amounts as provided in section 9.3 and in no event shall such percentage exceed any applicable statutory requirements of this Agreement. Retainage shall be withheld and administered in accordance with Iowa Code Chapter 572:

9.3 **ADJUSTMENT OF TRADE CONTRACTOR'S PAYMENT APPLICATION** The Owner or the Construction Manager, upon notification of the Design Professional, may reject or adjust a Trade Contractor payment application or nullify a previously approved Trade Contractor payment application, in whole or in part, as may reasonably be necessary to protect the Owner from loss or damage based upon the following, to the extent that the Trade Contractor is responsible therefor under this Trade Contractor Agreement:

9.3.1 the Trade Contractor's repeated failure to perform the Trade Contract Work as required by the Trade Contractor Agreement;

9.3.2 loss or damage arising out of or relating to the Trade Contractor Agreement and caused by the Trade Contractor to the Owner, or to the Construction Manager or others to whom the Owner may be liable;

9.3.3 the Trade Contractor's failure to properly pay for labor, materials, equipment or supplies furnished in connection with the Trade Contract Work;

9.3.4 nonconforming or defective Trade Contract Work which has not been corrected in a timely fashion;

9.3.5 reasonable evidence of delay in performance of the Trade Contract Work such that the work will not be completed within the Trade Contract Time, and that the unpaid balance of the Trade Contract Price is not sufficient to offset any liquidated damages or actual damages that may be sustained by the Owner as a result of the anticipated delay caused by the Trade Contractor;

9.3.6 reasonable evidence demonstrating that the unpaid balance of the Trade Contract Price is insufficient to cover the cost to complete the Trade Contract Work; and

9.3.7 third-party claims involving the Trade Contractor or reasonable evidence demonstrating that third-party claims are likely to be filed unless and until the Trade Contractor furnishes the Owner with adequate security in the form of a surety bond, letter of credit or other collateral or commitment which are sufficient to discharge such claims if established. No later than thirty (30) Days after receipt of an application for payment, the Owner or Construction Manager shall give written notice to the Trade Contractor, disapproving or nullifying it or a portion thereof, specifying the reasons for the disapproval or nullification. When the above reasons for disapproving or nullifying an application for payment are removed, payment will be made for amounts previously withheld.

9.4 **PAYMENT NOT ACCEPTANCE** Payment to the Trade Contractor does not constitute or imply acceptance of any portion of the Trade Contract Work.

9.5 **PAYMENT DELAY** If for any reason not the fault of the Trade Contractor, the Trade Contractor does not receive a progress payment from the Owner sixty (60) calendar Days after the time such payment is due, as defined in Subparagraph 9.2.1, then the Trade Contractor, upon giving within seven (7) calendar Days after written notice to the Owner, and without prejudice to and in addition to any other legal remedies, may stop its Trade Contract Work until payment of the full amount owing to the Trade Contractor has been received. The

Trade Contract Price and Trade Contract Time shall be equitably adjusted by a Trade Contract Change Order to reflect reasonable cost and delay resulting from shutdown, delay and start-up.

## 9.6 SUBSTANTIAL COMPLETION

9.6.1 The Trade Contractor shall notify the Owner, the Construction Manager and the Design Professional when it considers Substantial Completion of the Trade Contract Work or a designated portion to have been achieved. The Construction Manager and the Design Professional shall promptly conduct an inspection to determine whether the Trade Contract Work or designated portion can be occupied or utilized for its intended use by the Owner without excessive interference in completing any remaining unfinished Trade Contract Work by the Trade Contractor. If the Construction Manager and the Design Professional determine that the Trade Contract Work or designated portion has not reached Substantial Completion, the Design Professional, and the Construction Manager, shall promptly compile a list of items to be completed or corrected so the Owner may occupy or utilize the Trade Contract Work or designated portion for its intended use. The Trade Contractor shall promptly complete all items on the list.

9.6.2 When Substantial Completion of the Trade Contract Work or a designated portion is achieved, the Construction Manager and the Design Professional shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, and the respective responsibilities of the Owner and Trade Contractor for interim items such as security, maintenance, utilities, insurance and damage to the Trade Contract Work. The Owner shall assume all responsibilities for items such as security, maintenance, utilities, and insurance, and damage to the Work. The certificate shall also list the items to be completed or corrected, and establish the time for their completion or correction. The Certificate of Substantial Completion shall be submitted to the Trade Contractor for written acceptance of responsibilities assigned in the Certificate.

9.6.3 Unless otherwise provided in the Certificate of Substantial Completion, warranties required by the Trade Contract Documents shall commence on the date of Substantial Completion of the Trade Contract Work or a designated portion.

9.6.4 Uncompleted items shall be completed by the Trade Contractor by the Final Completion date set forth in the Agreement and/or Construction Schedule. The Trade Contractor may request early release of retainage in accordance with Iowa Code Section 26.13. Payment for completed work and retainage shall be made in accordance with Iowa Code Chapters 26 and 573.

9.7 PARTIAL OCCUPANCY OR USE The Owner may occupy or use completed or partially completed portions of the Trade Contract Work when (a) the portion of the Trade Contract Work is designated in a Certificate of Substantial Completion, (b) appropriate insurer(s) consent to the occupancy or use, and (c) appropriate public authorities authorize the occupancy or use. Such partial occupancy or use shall constitute Substantial Completion of that portion of the Trade Contract Work.

## 9.8 FINAL PAYMENT

9.8.1 APPLICATION Upon acceptance of the Trade Contract Work by the Construction Manager, and approval by the Design Professional, and upon the Trade Contractor furnishing evidence of fulfillment of the Trade Contractor's obligations in accordance with the Trade Contract Documents, the Trade Contractor shall submit its application for final payment. The Construction Manager will review the Trade Contractor's final payment application and recommend to the Design Professional and the Owner an amount payable by the Owner to the Trade Contractor. The Design Professional shall then recommend an amount to be paid by the Owner. Final payment shall be made in accordance with Iowa Code Chapters 26 and 573.

9.8.2 REQUIREMENTS Along with its application for final payment, the Trade Contractor shall furnish to the Construction Manager:

9.8.2.1 an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Trade Contract Work for which the Owner or its property or the Construction Manager or the Owner's surety might in any way be liable, have been paid or otherwise satisfied;

9.8.2.2 consent of the Trade Contractor's surety to final payment;

9.8.2.3 satisfaction of closeout procedures as may be required by the Trade Contractor Agreement;

9.8.2.4 certification (or other writing indicating) that insurance required by the Trade Contractor Agreement is and will remain effect beyond final payment pursuant to this Trade Contractor Agreement and

9.8.2.5 other data if required by the Owner or Construction Manager, such as receipts, releases, and waivers of liens effective upon payment to the extent and in such form as may be designated by the Owner or Construction Manager. Acceptance of final payment by the Trade Contractor shall constitute a waiver of all claims by the Trade Contractor except those previously made in writing and identified by the Trade Contractor as unsettled at the time of final application for payment.

9.8.3 TIME OF PAYMENT Final payment of the balance of the Trade Contract Price, less any amount retained pursuant to subsection 9.2.4 of this Agreement, and as required by Iowa Code Chapters 26 and 573, which among other things requires that twice the amount of an Iowa Code Chapter 573 subcontractor claim be withheld from final payment, shall be made to the Trade contractor within sixty (60) Days after the Trade Contractor has submitted a complete and accurate application for final payment.

9.8.4 LATE PAYMENT INTEREST Progress payments or final payment due and unpaid under this Trade Contractor Agreement shall bear interest from the date payment is due at the statutory rate prevailing at the place of the Project.

9.9 PAYMENT USE AND VERIFICATION The Trade Contractor is required to pay for all labor, materials and equipment used in the performance of the Trade Contract Work through the most current period applicable to progress payments received. Reasonable evidence, satisfactory to the Construction Manager, may be required to show that all obligations relating to the Trade Contract Work are current before releasing any payment due on the Trade Contract Work. If required by the Construction Manager, before final payment is made for the Trade Contract Work, the Trade Contractor shall submit evidence satisfactory to the Construction Manager that all payrolls, bills for materials and equipment, and all known indebtedness connected with the Trade Contract Work, have been paid or otherwise satisfied as set forth in subsection 9.8.2.

## ARTICLE 10 INDEMNITY, INSURANCE, WAIVERS AND BONDS

### 10.1 INDEMNITY

10.1A To the extent portions of this Article are in conflict with SF 396 (codified at Iowa Code Section 573A.5) said portions are void and unenforceable.

10.1.1 TRADE CONTRACTOR'S INDEMNITY To the fullest extent permitted by law, the Trade Contractor shall indemnify and hold harmless the Owner, the Owner's officers, directors, members,

consultants, agents and employees, from all claims for bodily injury and property damage, other than to the Work itself and other property insured under subsection 10.3.1, including reasonable attorneys' fees, costs and expenses, that may arise from the performance of the Work, but only to the extent caused by the negligent acts or omissions of the Trade Contractor, Subcontractors or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable. The Trade Contractor shall be entitled to reimbursement of any defense costs paid above the Trade Contractor's percentage of liability for the underlying claim to the extent provided for under subsection 10.1.2.

10.1.2 OWNER'S INDEMNITY To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Trade Contractor, its officers, directors, members, consultants, agents, and employees, from all claims for bodily injury and property damage, other than property insured under subsection 10.3.1, including reasonable attorneys' fees, costs and expenses, that may arise from the performance of work by Owner, Design Professional or Others, but only to the extent caused by the negligent acts or omissions of the Owner, Design Professional or Others. The Owner shall be entitled to reimbursement of any defense costs paid above Owner's percentage of liability for the underlying claim to the extent provided for under subsection 10.1.1.

10.1.3 CONSTRUCTION MANAGER AND DESIGN PROFESSIONAL INDEMNITY The Owner shall cause the Construction Manager and the Design Professional to agree to indemnify and hold harmless the Owner from all claims for bodily injury and property damage, other than to the Work itself and other property insured under section 10.3, that may arise from the Construction Manager's or the Design Professional's services, but only to the extent that such claims result from the negligent acts or omissions of the Construction Manager or the Design Professional, respectively, or anyone for whose acts or omissions the Construction Manager or Design Professional, respectively, is liable. Such provisions shall be in a form no less protective of the Parties than the Construction Manager's Indemnity provided in ConsensusDocs 801 (2011) or the Design Professional's indemnity provided in ConsensusDocs 803 (2011) respectively, and shall be reasonably satisfactory to the Owner and the Trade Contractor.

10.1.4 ADJACENT PROPERTY INDEMNIFICATION To the extent of the limits of Trade Contractor's Commercial General Liability Insurance specified in subsection 10.2.1 or Zero Dollars and No Cents (\$0.00) whichever is more, the Trade Contractor shall indemnify and hold harmless the Owner against any and all liability, claims, demands, damages, losses and expenses, including attorney's fees, in connection with or arising out of any damage or alleged damage to any of Owner's existing adjacent property that may arise from the performance of the Trade Contract Work, but only to the extent of the negligent acts or omissions of the Trade Contractor, Subcontractor or anyone employed directly or indirectly by any of them or by anyone for whose acts any of them may be liable.

10.1.5 NO LIMITATION ON LIABILITY In any and all claims against the Indemnitees by any employee of the Trade Contractor, anyone directly or indirectly employed by the Trade Contractor or anyone for whose acts the Trade Contractor may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Trade Contractor under Workers' Compensation acts, disability benefit acts or other employment benefit acts.

## 10.2 TRADE CONTRACTOR'S INSURANCE

10.2.1 Prior to the start of the Work, the Trade Contractor shall procure and maintain in force Workers Compensation/Employers' Liability Insurance, Business Automobile Liability Insurance, and Commercial General Liability Insurance (CGL). The CGL policy shall include coverage for liability arising from premises, operations, independent contractors, products-completed operations, personal injury and



advertising injury, contractual liability, and broad form property damage. The Trade Contractor's liability policies, as required in this Subparagraph 10.2.1, shall be written on an occurrence basis with at least the following limits of liability:

10.2.1.1 Workers' Compensation- amount required by the laws of Iowa

10.2.1.2 Employers' Liability Insurance - \$500,000 or an amount required by Iowa law, whichever is greater.

10.2.1.3 Business Automobile Liability Insurance

a. \$1,000,000 Each Accident

10.2.1.4 Commercial General Liability Insurance

a. \$1,000,000 Each Occurrence b. \$2,000,000 General Aggregate c. \$1,000,000 Products/Completed Operations Aggregate d. \$1,000,000 Personal and Advertising Injury Limit

10.2.2 The Trade Contractor Must also carry and maintain Excess or Umbrella Liability coverage for the policies in subsection 10.2.1 in the amounts as listed below:

Trade Contractor Contract Amount: <\$1,000,000 - \$2 Million Umbrella or more \$1,000,000 - \$5,000,000 - \$5 Million Umbrella or more >\$5,000,000 - \$10 Million Umbrella or more

10.2.3 The Trade Contractor shall maintain in effect all insurance coverage required under subsection 10.2.1 with insurance companies lawfully authorized to do business in Iowa. Such insurance companies shall have a minimum A.M. Best Rating of A-VI (Consult instructions and insurance advisor). If the Trade Contractor fails to obtain or maintain any insurance coverage required under this Agreement, the Owner may purchase such coverage and charge the expense to the Trade Contractor, or terminate this Agreement.

10.2.4 To the extent commercially available, the policies of insurance required under Subparagraph 10.2.1 shall contain a provision that the insurance company or its designee must give the Owner written notice transmitted in paper or electronic format: (a) 30 days before coverage is nonrenewed by the insurance company and (b) with 10 business days after cancelation of coverage by the insurance company. The Trade Contractor shall maintain completed operations liability insurance for one year after acceptance of the Contract Documents, whichever is longer. Prior to commencement of services, the Trade Contractor shall furnish the Owner with certificates evidencing the required coverages. In addition, if any insurance policy required under subsection 10.2.1 is not to be immediately replaced without a lapse in coverage when it expires, exhausts its limits, or is to be, cancelled, the Trade Contractor shall give Owner prompt written notice upon actual or constructive knowledge of such condition.

#### 10.2.5 ADDITIONAL LIABILITY COVERAGE

10.2.5.1 The Owner  shall /  shall not (indicate one) require the Trade Contractor to purchase and maintain liability coverage, primary to the Owner's coverage under subsection 10.3.1.

10.2.5.2 If required by subsection 10.2.5.1, the additional liability coverage required of the Trade Contractor shall be:

1. Additional Insured Owner shall be named as an additional insured on Trade Contractor's Commercial General Liability Insurance specified for operations and completed operations,

but only with respect to liability for bodily injury, property damage or personal and advertising injury to the extent caused by the negligent acts or omissions of Trade Contractor, or those acting on Trade Contractor's behalf, in the performance of Trade Contractor's Work for.

2. OCP Trade Contractor shall provide an Owners' and Contractors' Protective Liability Insurance ("OCP") policy with limits equal to the limits on Commercial General Liability Insurance specified or limits as otherwise required by Owner.

Any documented additional cost in the form of a surcharge associated with procuring the additional liability coverage in accordance with this subsection shall be paid by the Owner directly or the costs may be reimbursed by the Owner to the Trade Contractor by increasing the Trade Contract Price to correspond to the actual cost required to purchase and maintain the additional liability coverage. Prior to commencement of the Work, the Trade Contractor shall obtain and furnish to the Owner a certificate evidencing that the additional liability coverages have been procured.

10.2.6 PROFESSIONAL LIABILITY INSURANCE To the extent the Trade Contractor is required to procure design services under this Agreement, in accordance with section 3.14, the Trade Contractor shall require the designers to obtain professional liability insurance for claims arising from the negligent performance of professional services under this Agreement, with a company reasonably satisfactory to the Owner, including coverage for all professional liability caused by any of the Designer's(s') consultants, written for not less than \$1,000,000 per claim and in the aggregate with the deductible not to exceed \$2,000,000. The deductible shall be paid by the Designer.

### 10.3 OWNER'S INSURANCE

10.3.1 Deleted.

10.3.2 Deleted.

### 10.4 PROPERTY INSURANCE

10.4.1 Before the start of Trade Contract Work, the Owner shall obtain and maintain Builder's Risk Policy insurance with minimum coverage limits equal to the full cost of replacement of the Project at the time of loss. This insurance shall also name the Trade Contractor, Subcontractors, Material Suppliers, Construction Manager and Design Professional as insureds. This insurance shall be written as a Builder's Risk Policy or equivalent form to cover all risks of physical loss except those specifically excluded by the policy, and shall insure at least against the perils of fire, lightning, explosion, windstorm, hail, smoke, aircraft and vehicles, riot and civil commotion, theft, vandalism, malicious mischief, debris removal, flood (subject to sublimits), earthquake (subject to sublimits), earth movement, water damage, wind damage, testing if applicable, collapse however caused, and shall include coverage for, material, or equipment stored offsite, onsite or in transit. This policy shall provide for a waiver of subrogation in favor of the Trade Contractor, Subcontractors, Material Suppliers, Construction Manager and Design Professional. This insurance shall remain in effect until the Substantial Completion of the Work, final payment has been made or until no person or entity other than the Owner has an insurable interest in the property to be covered by this insurance, whichever is sooner. Partial occupancy or use of the Work shall not commence until the Owner has secured the consent of the insurance company or companies providing the coverage required in this Subparagraph 10.4.1.

10.4.2 If the Owner does not intend to purchase the property insurance required by this Agreement, including all of the coverages and deductibles described herein, the Owner shall give written notice to the Trade Contractor, the Design Professional and the Construction Manager before the Trade Contract

Work is commenced. The Trade Contractor may then provide insurance to protect its interests and the interests of the Subcontractors, including the coverage of deductibles. The cost of this insurance shall be charged to the Owner in a Change Order. The Owner shall be responsible for all of Trade Contractor's costs reasonably attributed to the Owner's failure or neglect in purchasing or maintaining the coverage described above.

10.4.2.1 The Owner will not obtain insurance to cover the risk of physical loss resulting from Terrorism. The Construction Manager is not required to purchase this type of insurance but may purchase this type of insurance if it chooses. If purchased, the cost of this insurance shall be borne by the Construction manager.

10.4.3 POLICIES The Owner shall provide the Trade Contractor with a copy of all policies including all endorsements upon request.

## 10.5 PROPERTY INSURANCE LOSS ADJUSTMENT

10.5.1 LOSS ADJUSTMENT Any insured loss shall be adjusted with the Owner and the Trade Contractor and made payable to the Owner as trustee for the insureds, as their interests may appear.

10.5.2 DISTRIBUTION OF PROCEEDS Following the occurrence of an insured loss, monies received will be deposited in a separate account and the trustee shall make distribution in accordance with the agreement of the Parties in interest.

## 10.6 WAIVERS

10.6.1 PROPERTY DAMAGE The Owner and Trade Contractor waive all claims and other rights they may have against each other for loss of or damage to (a) the Project, (b) all materials, machinery, equipment and other items used in accomplishing the Trade Contract Work or services or to be incorporated into the Project, while the same are in transit, at the Project Site, during erection and otherwise, and (c) all property owned by or in the custody of Owner and its affiliates, however such loss or damage shall occur, to the extent such damage is covered by property insurance. The proceeds of such insurance shall be held by the Owner as trustee.

10.6.2 WAIVER OF SUBROGATION The Owner shall have its insurers waive all rights of subrogation they may have against the Construction Manager, Design Professional, Trade Contractors, and their Subcontractors and Material Suppliers on all policies carried by the Owner on the Project and adjacent properties, including, after final payment, those policies to be provided on the completed Project not intended to insure the Project during construction.

10.6.3 ENDORSEMENT If the policies of insurance referred to in this section require an endorsement to provide for continued coverage where there is a waiver of subrogation, the Owner will cause them to be so endorsed.

10.7 RISK OF LOSS Except to the extent a loss is covered by property insurance carried by the owner, risk of loss or damage to the Work shall be upon the Trade Contractor until the Date of Final Completion, unless otherwise agreed to by the Parties.

## 10.8 BONDS Performance and Payment Bonds

are

are not

required of the Trade Contractor that meet the requirements of Iowa Code Chapter 573. A deposit in lieu of a

bond may be acceptable if it meets the requirements of Iowa Code Section 573.4. Such bonds shall be issued by a surety admitted in the State in which the Project is located and must be acceptable to the Owner. The Owner's acceptance shall not be withheld without reasonable cause. The penal sum of the Payment Bond and of the Performance Bond shall each be one hundred percent (100%) of the original Contract Price. Any increase in the Contract Price that exceeds ten percent (10%) in the aggregate shall require a rider to the Bonds increasing penal sums accordingly. Up to such ten percent (10%) amount, the penal sum of the Bond shall remain equal to one hundred percent (100%) of the Contract Price. The Trade Contractor shall endeavor to keep its surety advised of changes potentially impacting the Contract Time and Contract Price, though the Trade Contractor shall require that its surety waives any requirement to be notified of any alteration or extension of time. The Trade Contractor's Payment Bond for the Project, if any, shall be made available by the Owner for review and copying by the Subcontractor. Iowa Code Chapter 573 shall control and take precedence over any conflicting term or condition in this Agreement

## **ARTICLE 11 SUSPENSION, NOTICE TO CURE AND TERMINATION OF AGREEMENT**

### **11.1 SUSPENSION BY OWNER FOR CONVENIENCE**

11.1.1 OWNER SUSPENSION Should the Owner order the Trade Contractor in writing to suspend, delay, or interrupt the performance of the Trade Contract Work for such period of time as may be determined to be appropriate for the convenience of the Owner and not due to any act or omission of the Trade Contractor or any person or entity for whose acts or omissions the Trade Contractor may be liable, then the Trade Contractor shall immediately suspend, delay or interrupt that portion of the Trade Contract Work as ordered by the Owner. The Trade Contract Price and the Trade Contract Time shall be equitably adjusted by Trade Contract Change Order for the cost and delay resulting from any such suspension.

11.1.2 Any action taken by the Owner that is permitted by any other provision of the Trade Contract Documents and that results in a suspension of part or all of the Trade Contract Work does not constitute a suspension of Trade Contract Work under this section.

11.2 NOTICE TO CURE A DEFAULT If the Trade Contractor persistently refuses or fails to supply enough properly skilled workers, proper materials, or equipment to maintain the approved Construction Schedule in accordance with ARTICLE 6, or fails to make prompt payment to its workers, Subcontractors or Material Suppliers; disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction; or is otherwise guilty of a material breach of a provision of this Agreement, the Trade Contractor may be deemed in default. If the Trade Contractor fails within seven (7) business Days after receipt of written notification to commence and continue satisfactory correction of such default with diligence and promptness, then the Owner shall give the Trade Contractor a second notice to correct the default within a three (3) Day period. If the Trade Contractor fails to promptly commence and continue satisfactory correction of the default following receipt of such second notice, the Owner without prejudice to any other rights or remedies may:

11.2.1 supply workers and materials, equipment and other facilities as the Owner or Construction Manager deems necessary for the satisfactory correction of the default, and charge the cost to the Trade Contractor, who shall be liable for the payment of same including reasonable Overhead, profit and attorneys' fees;

11.2.2 contract with Others to perform such part of the Trade Contract Work as the Owner or Construction Manager determines shall provide the most expeditious correction of the default, and charge the cost to the Trade Contractor;

11.2.3 withhold payment due the Trade Contractor in accordance with section 9.3; and

11.2.4 in the event of an emergency affecting the safety of persons or property, immediately commence

and continue satisfactory correction of such default as provided in subsections 11.2.1 and 11.2.2 without first giving written notice to the Trade Contractor, but shall give prompt written notice of such action to the Trade Contractor following commencement of the action.

### 11.3 OWNER'S RIGHT TO TERMINATE FOR DEFAULT

11.3.1 TERMINATION BY OWNER FOR DEFAULT If, within seven (7) Days of receipt of a notice to cure pursuant to section 11.2, the Trade Contractor fails to commence and satisfactorily continue correction of the default set forth in the notice to cure, the Owner may notify the Trade Contractor that it intends to terminate this Agreement for default absent appropriate corrective action within fourteen additional Days. After the expiration of the additional fourteen (14) Day period, the Owner may terminate this Agreement by written notice absent appropriate corrective action. Termination for default is in addition to any other remedies available to Owner under section 11.2. If the Owner's cost arising out of the Trade Contractor's failure to cure, including the cost of completing the Trade Contract Work and reasonable attorneys' fees, exceeds the unpaid Trade Contract Price, the Trade Contractor shall be liable to the Owner for such excess costs. If the Owner's costs are less than the unpaid Trade Contract Price, the Owner shall pay the difference to the Trade Contractor. In the event the Owner exercises its rights under this section, upon the request of the Trade Contractor the Owner shall furnish to the Trade Contractor a detailed accounting of the cost incurred by the Owner.

11.3.2 USE OF TRADE CONTRACTOR'S MATERIALS, SUPPLIES AND EQUIPMENT If the Owner or Others perform work under this section, the Owner shall have the right to take and use any materials, supplies and equipment belonging to the Trade Contractor and located at the Worksite for the purpose of completing any remaining Trade Contract Work. Immediately upon completion of the Work, any remaining materials, supplies or equipment not consumed or incorporated in the Trade Contract Work shall be returned to the Trade Contractor in substantially the same condition as when they were taken, reasonable wear and tear excepted.

11.3.3 If the Trade Contractor files a petition under the Bankruptcy Code, this Agreement may be terminated for cause at the may be terminated for cause at the Owner.

11.3.3 If the Trade Contractor files a petition under the Bankruptcy Code, this Agreement may be terminated for cause at the may be terminated for cause at the Owner.

11.3.4 The Owner shall make reasonable efforts to mitigate damages arising from Trade Contractor default, and shall promptly invoice the Trade Contractor for all amounts due pursuant to sections 11.2 and 11.3.

### 11.4 TERMINATION BY OWNER FOR CONVENIENCE

11.4.1 Upon written notice to the Trade Contractor, the Owner may, without cause, terminate this Agreement. The Trade Contractor shall immediately stop the Work, follow the Owner's or Construction Manager's instructions regarding shutdown and termination procedures, and strive to minimize any further costs.

11.4.2 If the Owner terminates this Agreement pursuant to this section, the Trade Contractor shall be paid:

11.4.2.1 for the Work performed to date including Overhead and profit; and

11.4.2.2 for all demobilization costs and costs incurred as a result of the termination but not including Overhead or profit on work not performed;

11.4.2A Upon written notice to the Trade Contractor the Owner has the right to terminate this

Agreement without penalty as a result of the following: 1) the legislature or governor fail to appropriate funds sufficient to allow the Owner to operate as required and fulfill its obligations under this Agreement, 2) funds are de-appropriated or not allocated, 3) the Owner's authorization to operate is withdrawn or there is a material alteration in the programs administered by the owner, or 4) the Owner's duties are substantially modified. If such a termination results then the Trade Contractor shall be paid in the manner set forth in subparagraph 11.4.2. If, however, an appropriation to cover the cost of this Agreement becomes available within sixty (60) days subsequent to termination under this paragraph then the Owner agrees to re-enter into a modified version of this Agreement that accounts for the termination and reinstatement.

11.4.3 If the Owner terminates this Agreement pursuant to sections 11.3 or 11.4, the Trade Contractor shall:

11.4.3 If the Owner terminates this Agreement pursuant to sections 11.3 or 11.4, the Trade Contractor shall:

11.4.3.1 execute and deliver to the Owner all papers and take all action required to assign, transfer and vest in the Owner the rights of the Trade Contractor to all materials, supplies and equipment for which payment has or will be made in accordance with the Trade Contract Documents and all subcontracts, orders and commitments which have been made in accordance with the Trade Contract Documents;

11.4.3.2 exert reasonable effort to reduce to a minimum the Owner's liability for subcontracts, orders and commitments that have not been fulfilled at the time of the termination;

11.4.3.3 cancel any subcontracts, orders and commitments as the Owner or Construction Manager directs; and

11.4.3.4 sell at prices approved by the Owner or Construction Manager any materials, supplies and equipment as the Owner or Construction Manager directs, with all proceeds paid or credited to the Owner.

## 11.5 TRADE CONTRACTOR'S RIGHT TO TERMINATE

11.5.1 Upon seven (7) Days' written notice to the Owner and Construction Manager, the Trade Contractor may terminate this Agreement if the Trade Contract Work has been stopped for a thirty (30) Day period through no fault of the Trade Contractor for any of the following reasons:

11.5.1.1 under court order or order of other governmental authorities having jurisdiction;

11.5.1.2 as a result of the declaration of a national emergency or other governmental act during which, through no act or fault of the Trade Contractor, materials are not available; or

11.5.1.3 suspension by the Owner for convenience pursuant to section 11.1

11.5.2 In addition, upon seven (7) Days' written notice to the Owner and Construction Manager, the Trade Contractor may terminate the Agreement if the Owner:

11.5.2.1 fails to furnish reasonable evidence pursuant to section 4.1.2 that sufficient funds are available and committed for Project financing, or

11.5.2.2 assigns this Agreement over the Trade Contractor's reasonable objection, or

11.5.2.3 fails to pay the Trade Contractor in accordance with this Agreement and the Trade Contractor has complied with the notice provisions of section 9.5, or

11.5.2.4 otherwise materially breaches this Agreement.

11.5.3 Upon termination by the Trade Contractor in accordance with this section, the Trade Contractor shall be entitled to recover from the Owner payment for all Trade Contract Work executed and for any proven loss, cost or expense in connection with the Trade Contract Work, including all demobilization costs plus reasonable Overhead and profit on work not performed.

11.6 OBLIGATIONS ARISING BEFORE TERMINATION Even after termination pursuant to ARTICLE 11, the provisions of this Agreement still apply to any Trade Contract Work performed, payments made, events occurring, costs charged or incurred or obligations arising before the termination date.

## ARTICLE 12 DISPUTE MITIGATION AND RESOLUTION

12.1 WORK CONTINUANCE AND PAYMENT Unless otherwise agreed in writing, the Trade Contractor shall continue the Trade Contract Work and maintain the Construction Schedule during any dispute mitigation or resolution proceedings. If the Trade Contractor continues to perform, the Owner shall continue to make payments in accordance with this Agreement.

12.2 DIRECT DISCUSSIONS If the Parties cannot reach resolution on a matter relating to or arising out of the Agreement, the Parties shall endeavor to reach resolution through good faith direct discussions between the Parties' representatives, who shall possess the necessary authority to resolve such matter and who shall record the date of first discussions. The authorized representative for the Trade Contractor is identified in Paragraph 3.4 of the Agreement. The authorized representative for the Owner is identified in Paragraph 4.2 of the Agreement. The parties' authorized representative are, among other things, authorized to resolve matters of disagreement and disputes between the Parties. If the dispute remains unresolved after fifteen (15) Days from the date of first discussion, the Parties shall submit such matter to the dispute mitigation and dispute resolution procedures selected herein.

12.3 MITIGATION The Parties agree that dispute mitigation procedures provided in this Project. Disputes remaining unresolved after direct discussions shall be directed to the selected mitigation procedure immediately below. The dispute mitigation procedure shall result in nonbinding finding on the matter. This may be introduced as evidence at a subsequent binding adjudication of the matter, as designee on Paragraph 12.5. The Parties agree that the dispute mitigation procedure shall be

(Designate only one.)

Project Neutral

Dispute Review Board

12.3.1 MITIGATION PROCEDURES The Project Neutral/Dispute Review Board shall be mutually selected and appointed by the Parties and shall execute a retainer agreement with the Parties establishing the scope of the Project Neutral/Dispute Review Board's responsibilities. The costs and expenses of the Project Neutral/Dispute Review Board shall be shared equally by the Parties. The Project Neutral/Dispute Review Board shall be available to either Party, upon request, throughout the course of the Project, and shall make regular visits to the Project so as to maintain an up-to-date understanding of the Project progress and issues and to enable the Project Neutral/Dispute Review Board to address matters in dispute between the Parties promptly and knowledgeably. The Project Neutral/Dispute Review Board shall issue nonbinding findings within five (5) business Days of referral of the matter to the Project Neutral, unless good cause is shown.

12.3.2 If the matter remains unresolved following the issuance of the nonbinding finding by the mitigation procedure or if the Project Neutral/Dispute Review Board fails to issue nonbinding findings

within five (5) Days of the referral, the Parties shall submit the matter to the binding dispute resolution procedure designated in section 12.5.

12.4 MEDIATION If direct discussions pursuant to section 12.2 do not result in resolution of the matter and no dispute mitigation procedure is selected under section 12.3, the Parties shall endeavor to resolve the matter by mediation through the current Construction Industry Mediation Rules of the American Arbitration Association, or the Parties may mutually agree to select another set of mediation rules. The administration of the mediation shall be as mutually agreed by the Parties. The mediation shall be convened within thirty (30) business Days of the matter first being discussed and shall conclude within forty-five (45) business Days of the matter first being discussed. Either Party may terminate the mediation at any time after the first session, but the decision to terminate shall be delivered in person by the terminating Party to the non-terminating Party and to the mediator. The costs of the mediation shall be shared equally by the Parties.

12.5 BINDING DISPUTE RESOLUTION If the matter is unresolved after submission of the matter to a mitigation procedure or to mediation, the Parties shall submit the matter to the binding dispute resolution procedure designated herein.

(Designate only one.)

Arbitration using the current Construction Industry Arbitration Rules of the American Arbitration Association

Litigation in either the state or federal court having jurisdiction of the matter in the location of the Project.

12.5.1 The costs of any binding dispute resolution procedures shall be borne by the non-prevailing Party, as determined by the adjudicator of the dispute. However, the costs of binding dispute resolution does not include attorney fees. The Parties are each responsible for paying for their own attorney fees.

12.5.2 VENUE The venue of any binding dispute resolution procedure shall be Des Moines, Iowa.

12.6 MULTIPARTY PROCEEDING All parties necessary to resolve a claim shall be parties to the same dispute resolution proceeding. Appropriate provisions shall be included in all other contracts relating to the Work to provide for the joinder or consolidation of such dispute resolution procedures.

12.7 LIEN RIGHTS The Trade Contractor acknowledges that it has no mechanic's lien rights on this Project because it is a public improvement project.

### ARTICLE 13 MISCELLANEOUS PROVISIONS

13.1 ASSIGNMENT Neither the Owner nor the Trade Contractor shall assign their interest in this Agreement without the written consent of the other except as to the assignment of proceeds. The terms and conditions of this Agreement shall be binding upon both Parties, their partners, successors, assigns and legal representatives. Neither Party to this Agreement shall assign the Agreement as a whole without written consent of the other. If either Party attempts to make such an assignment, that Party shall nevertheless remain legally responsible for all obligations under this Agreement, unless otherwise agreed by the other Party.

13.2 GOVERNING LAW This Agreement and all disputes arising there from shall be governed by the Iowa law.

13.3 SEVERABILITY The partial or complete invalidity of any one or more provisions of this Agreement shall not affect the validity or continuing force and effect of any other provision.

13.4 NO WAIVER OF PERFORMANCE The failure of either Party to insist, in any one or more instances, on the performance of any of the terms, covenants or conditions of this Agreement, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of such term, covenant, condition or right with respect to further performance or any other term, covenant, condition or right.

13.5 TITLES AND GROUPINGS The titles given to the articles of this Agreement are for ease of reference only and shall not be relied upon or cited for any other purpose. The grouping of the articles in this Agreement and of the Owner's specifications under the various headings is solely for the purpose of convenient organization and in no event shall the grouping of provisions, the use of sections or the use of headings be construed to limit or alter the meaning of any provisions.

13.6 ASSISTANCE OF COUNSEL AND INTERPRETATION The Parties agree that they had the opportunity to obtain the assistance of counsel in reviewing the Agreement terms prior to execution. This Agreement shall be construed neither against nor in favor of either Party, but shall be construed in a neutral manner.

13.7 RIGHTS AND REMEDIES The Parties' rights, liabilities, responsibilities and remedies with respect to this Agreement, whether in contract, tort, negligence or otherwise, shall be exclusively those expressly set forth in this Agreement.

13.8 ADDITIONAL PROVISIONS (Insert here other provisions, if any, that pertain to this Agreement See Below.)

13.9 COMPLIANCE WITH LAW AND REGULATIONS The Trade Contractor shall comply with all applicable federal, state, and local laws, rules, ordinances, regulations and orders when performing services and/or performing work under this Agreement, including without limitation, all laws applicable to the prevention of discrimination in employment and the use of targeted small businesses as subcontractors or suppliers. The Trade Contractor declares that it has complied with all federal, state and local laws regarding business permits and licenses that may be required to provide the services and work required by this Agreement. The Trade Contractor further acknowledges that if this Project is a recipient of Federal financial assistance that it may be subject to requirements of Federal Acts and Executive Orders as mandated by Federal agencies having authority and jurisdiction to enforce and ensure compliance with such laws and regulations including, but not necessarily limited to, the Davis Bacon Act and other Federal Acts and Executive Orders.

13.10 EMPLOYMENT PRACTICES: It is the intent of the Iowa Department of Administrative Services to assure equal employment opportunity in all contract work as required by law. Vendors, are required to take affirmative action to ensure that applicants employed or seeking employment with them are treated equally as required by law. Vendors shall not illegally discriminate against any employee. During the course of the Project, the Vendor may be required to show compliance with the EEO and Affirmative Action requirements. Noncompliance with the provisions set forth at the time of contract award may result in termination or suspension of the Agreement in whole or in part. All vendors and service providers working under the terms of this Agreement are prohibited from engaging in discriminatory employment practices forbidden by Iowa law. Vendors shall complete and submit the Nondiscrimination Clause form for the Owner's approval.

13.11 RECIPROCAL BIDDER PREFERENCE In accordance with Iowa Code Section 73A.21, as amended in 2011 by HF 648, if the Trade Contractor is not a resident bidder of Iowa, as defined by law, then the Trade Contractor must specifically identify in writing with its bid any and all preferences or preferential treatment (including preferences related to labor) enforced by the state or foreign country in which the Trade Contractor is a resident. If the low bid Trade Contractor is not a resident bidder of Iowa and the Trade Contractor's foreign State of residence enforces such a preference then the Owner shall reciprocally enforce the preference in favor of a resident bidder of Iowa. Failure on the part of the Trade Contractor to completely and accurately abide by this legal requirement may, among other things, result in civil penalties and void this Agreement. The Trade Contractor should contact its attorney regarding this legal requirement if the Trade

Contractor has questions regarding its meaning or application.

13.12 LABOR RELATIONS The Trade Contractor shall comply with all Iowa and Federal labor laws. In accordance with Executive Order Number 69, issued by the Governor of Iowa on or about January 14, 2011, no project labor agreement (also known as a PLA), or similar, will be used on this Project. Iowa is a right to work state. No consultant, contractor, or employee shall be obligated to contract with or join any labor organization as a condition of performing work on this Project.

#### ARTICLE 14 TRADE CONTRACT DOCUMENTS

14.1 The Trade Contract Documents in existence at the time of execution of this Agreement are as follows:  
RFBXXXXXXXXX Bid Package X

#### 14.2 INTERPRETATION OF TRADE CONTRACT DOCUMENTS

14.2.1 The drawings and specifications are complementary. If Trade Contract Work is shown only on one but not on the other, the Trade Contractor shall perform the Trade Contract Work as though fully described on both consistent with the Trade Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

14.2.2 In case of conflicts between the drawings and specifications, the specifications shall govern. In any case of omissions or errors in figures, drawings or specifications, the Trade Contractor shall immediately submit the matter to the Owner for clarification. The Owner's clarifications are final and binding on all Parties, subject to an equitable adjustment in Trade Contract Time or Price pursuant to ARTICLE 6 and ARTICLE 7 or dispute resolution in accordance with ARTICLE 12.

14.2.3 Where figures are given, they shall be preferred to scaled dimensions.

14.2.4 Any terms that have well-known technical or trade meanings, unless otherwise specifically defined in this Agreement, shall be interpreted in accordance with their well-known meanings. This Agreement entered into as of the date entered in ARTICLE 1.

14.2.5 PRECEDENCE In case of any inconsistency, conflict or ambiguity among the Trade Contract Documents, the documents shall govern in the following order: (a) Trade Contract Change Orders and written amendments to this Agreement; (b) this Agreement; (c) subject to subsection 14.2.2 the drawings, specifications and addenda issued prior to the execution of this Agreement; (d) approved submittals; (e) information furnished by the Owner pursuant to subsection 4.1.3; (f) other documents listed in this Agreement. Among all the Trade Contract Documents, the term or provision that is most specific or includes the latest date shall control. Information identified in one Trade Contract Document and not identified in another shall not be considered to be a conflict or inconsistency.

This Agreement entered into as of the date entered in ARTICLE 1.

OWNER State of Iowa, Department of Administrative Services

Trade Contractor: *Contractor Name*

By: \_\_\_\_\_

(Authorized Representative)

Name:

Title:

Date:

Owner: State of Iowa - DAS

By: \_\_\_\_\_

(Authorized Representative)

Name:

Title:

Date:

END OF DOCUMENT.

DRAFT



**SECTION 00 6000**

**PERFORMANCE AND PAYMENT BOND**

**PART 1 - GENERAL**

**1.01 PERFORMANCE AND PAYMENT BOND**

- A. Performance and payment bonds to be used on this project, ConsensusDocs 260 and 261 are attached for reference following this page. ConsensusDocs performance and payment bonds are not required (other standard forms are acceptable to the State of Iowa).

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**



## CONSENSUSDOCS 260 PERFORMANCE BOND

This document was developed through a collaborative effort of organizations representing a wide cross-section of the design and construction industry. The organizations endorsing this document believe it represents a fair allocation of risk and responsibilities for all project participants.

Endorsing organizations recognize that this document must be reviewed and adapted to meet specific needs and applicable laws. This document has important legal and insurance consequences. You are encouraged to consult legal, insurance and surety advisors before completing or modifying this document. The software includes a notes section indicating where information is to be inserted to complete this document. Further information and endorsing organizations' perspectives are available at [www.consensusdocs.org/guidebook](http://www.consensusdocs.org/guidebook).

For Use with ConsensusDOCS 200, Standard Form of Agreement and General Conditions Between Owner and Constructor (Where the Contract Price is a Lump Sum) and ConsensusDOCS 500, Standard Agreement and General Conditions Between Owner and Construction Manager.

The Owner, \_\_\_\_\_, (the "Owner") and the Constructor, \_\_\_\_\_, (the "Constructor") have entered into a Contract (the "Contract") dated \_\_\_\_\_ for \_\_\_\_\_ (the "Project"). The Contract is incorporated by reference into this Performance Bond (the "Bond").

By virtue of this Bond, the Constructor as Principal and \_\_\_\_\_ as Surety ("Surety"), are bound to the Owner as Obligee in the maximum amount of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (the "Bond Sum"). The Constructor and Surety hereby bind themselves, their heirs, executors,

**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

ConsensusDOCS 260 • PERFORMANCE BOND Copyright © 2007, Revised 2009 and 2011, ConsensusDOCS LLC. AN INDIVIDUAL PURCHASE OF THIS DOCUMENT PERMITS THE USER TO PRINT ONE CONTRACT FOR ONE PROJECT ONLY. YOU MAY ONLY MAKE COPIES OF A COMPLETED DOCUMENT FOR DISTRIBUTION TO PARTIES IN DIRECT CONNECTION WITH THE SPECIFIC CONSTRUCTION PROJECT. ANY OTHER USES, INCLUDING COPYING THE DOCUMENT, ARE STRICTLY PROHIBITED.

administrators, successors and assigns, jointly and severally, as provided herein.

1. GENERAL CONDITIONS It is the condition of this Bond that if the Constructor performs its Contract obligations (the "Work"), the Surety's obligations under this Bond are null and void, Otherwise the Surety's obligations shall remain in full force and effect. The Surety waives any requirement to be notified of alterations or extensions of time made by the Owner in the Contract. The Owner may not invoke the provisions of this Bond unless the Owner has performed its obligations pursuant to the Contract. Upon making demand on this Bond, the Owner shall make the Contract Balance (the total amount payable by the Owner to the Constructor pursuant to the Contract less amounts properly paid by the Owner to the Constructor) available to the Surety for completion of the Work.

2. SURETY OBLIGATIONS If the Constructor is in default pursuant to the Contract and the Owner has declared the Constructor in default, the Surety promptly may remedy the default or shall

- a. Complete the Work, with the consent of the Owner, through the Constructor or otherwise,
- b. Arrange for the completion of the Work by a Constructor acceptable to the Owner and secured by performance and payment bonds equivalent to those for the Contract issued by a qualified surety. The Surety shall make available as the Work progresses sufficient funds to pay the cost of completion of the Work less the Contract Balance up to the Bond Sum, or
- c. Waive its right to complete the Work and reimburse the Owner the amount of its reasonable costs, not to exceed the Bond Sum, to complete the Work less the Contract Balance.

3. DISPUTE RESOLUTION All disputes pursuant to this Bond shall be instituted in any court of competent jurisdiction in the location in which the Project is located and shall be commenced within two years after default of the Constructor or Substantial Completion of the Work, whichever occurs first. If this provision is prohibited by law, the minimum period of limitation available to sureties in the jurisdiction shall be applicable.

This Bond is entered into as of \_\_\_\_\_.

SURETY \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

(Attach Power of Attorney)

Witness: .....

CONSTRUCTOR \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

Witness: .....

(Additional signatures, if any, appear on attached page)

**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.

ConsensusDOCS 260 • PERFORMANCE BOND Copyright © 2007, Revised 2009 and 2011, ConsensusDOCS LLC. AN INDIVIDUAL PURCHASE OF THIS DOCUMENT PERMITS THE USER TO PRINT ONE CONTRACT FOR ONE PROJECT ONLY. YOU MAY ONLY MAKE COPIES OF A COMPLETED DOCUMENT FOR DISTRIBUTION TO PARTIES IN DIRECT CONNECTION WITH THE SPECIFIC CONSTRUCTION PROJECT. ANY OTHER USES, INCLUDING COPYING THE DOCUMENT, ARE STRICTLY PROHIBITED.



**CONSENSUSDOCS 261  
PAYMENT BOND**

This document was developed through a collaborative effort of organizations representing a wide cross-section of the design and construction industry. The organizations endorsing this document believe it represents a fair allocation of risk and responsibilities for all project participants.

Endorsing organizations recognize that this document must be reviewed and adapted to meet specific needs and applicable laws. This document has important legal and insurance consequences. You are encouraged to consult legal, insurance and surety advisors before completing or modifying this document. The software includes a notes section indicating where information is to be inserted to complete this document. Further information and endorsing organizations' perspectives are available at [www.consensusdocs.org/guidebook](http://www.consensusdocs.org/guidebook).

For Use with ConsensusDOCS 200, Standard Form of Agreement and General Conditions Between Owner and Constructor (Where the Contract Price is a Lump Sum) and ConsensusDOCS 500, Standard Agreement and General Conditions Between Owner and Construction Manager,

The Owner, \_\_\_\_\_, (the "Owner")  
and the Constructor, \_\_\_\_\_,  
(the "Constructor") have entered into a Contract (the "Contract") dated \_\_\_\_\_ for  
\_\_\_\_\_ (the "Project"). The Contract is  
incorporated by reference into this Payment Bond (the "Bond").

By virtue of this Bond, the Constructor as Principal and \_\_\_\_\_ as  
Surety ("Surety"), are bound to the Owner as Oblige in the maximum amount of  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_) (the  
"Bond Sum"). The Constructor and Surety hereby bind themselves, their heirs, executors,

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**IMPORTANT:** A vertical line in the margin indicates a change has been made to the original text. Prior to signing, recipients may wish to request from the party producing the document a "redlined" version indicating changes to the original text. Consultation with legal and insurance counsel and careful review of the entire document are strongly encouraged.  
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administrators, successors and assigns, jointly and severally, as provided herein.

1. **GENERAL CONDITIONS** It is the condition of this Bond that if the Constructor promptly makes payment of all sums for all labor, materials, and equipment furnished for use in the performance of the work required by the Contract, the Surety's obligations pursuant to this Bond are null and void. Otherwise the Surety's obligations shall remain in full force and effect. The Surety waives any requirement to be notified of alterations or extensions of time made by the Owner in the Contract.

2. **SURETY OBLIGATION** Every Claimant who has not been paid in full before the expiration of a period of ninety (90) Days after such Claimant provided or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, may have a right of action on this Bond. The Surety's obligation to the Claimant(s) shall not exceed the Bond Sum.

3. **LIMITATION OF ACTION** No suit or action shall be commenced on this Bond by any Claimant

- a. Unless Claimant, other than one having a direct Contract with the Constructor, shall have given written notice to the Constructor, the Owner and the Surety within ninety (90) Days after the Claimant provided or performed the last of the work or labor, or furnished the last of the materials for which the claim is made, stating with substantial accuracy the amount claimed and the name of the Party to whom the materials were furnished, or for whom the work or labor was provided or performed. Such notice shall be served by any means which provides written third party verification of delivery to the Constructor at any place it maintains an office or conducts business, or served in any manner in which legal process may be served in the state in which the Project is located.
- b. After the expiration of one (1) year from the date on which the Claimant last performed labor or furnished materials or equipment on the Project. If this provision is prohibited by law, the minimum period of limitation available to sureties in the jurisdiction shall be applicable.
- c. Other than in any court of competent jurisdiction in the location in which the Project is located.

4. **CLAIMANT** A Claimant is defined as an individual or entity having a direct contract with the Constructor or having a contract with a subcontractor having a direct contract with the Constructor to furnish labor, materials or equipment for use in the performance of the Contract.

This Bond is entered into as of \_\_\_\_\_.

SURETY \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

Print Title: \_\_\_\_\_

(Attach Power of Attorney)

Witness: .....

CONSTRUCTOR \_\_\_\_\_ (seal)

By: .....

Print Name: \_\_\_\_\_

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Print Title: \_\_\_\_\_

Witness: .....

(Additional signatures, if any, appear on attached page)

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## SECTION 01 1200

### CONTRACT SUMMARY

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Project Information
- B. Project Summary
- C. Bid Scope Summary
- D. Work Hour Restrictions
- E. Access to Site
- F. Coordination with Occupants
- G. Rules for Construction Workers
- H. Bid Package Instructions

##### 1.02 PROJECT INFORMATION

- A. Facility Name/Location: Mount Pleasant Correctional Facility 1200 Grand Ave, Mt. Pleasant, Iowa 52641
- B. DAS Project #: 9500.00
- C. Owner: State of Iowa, Department of Administrative Services, Hoover State Office Building, Level 3, 1305 East Walnut Street, Des Moines, IA 50319
- D. Owner's Representative: Brandon Adams, Iowa Department of Administrative Services, 109 SE 13th Street, Des Moines, IA 50319
- E. Construction Manager: Aaron Ledeboer, McGough, 217 E. 2<sup>nd</sup> Street, Suite 120, Des Moines, Iowa 50309

##### 1.03 PROJECT SUMMARY

- A. The project includes the replacement of four existing diesel tanks with one twenty-thousand-gallon above ground diesel tank.
- B. Target date to provide substantial completion is January 2027

##### 1.04 BID SCOPE SUMMARY

- A. Scope Applicable to All Bid Packages:
  - 1. The Contractor's Work includes all labor, supervision, materials, equipment, services, supplies, tools, facilities, transportation, hoisting, storage, receiving, licenses, inspections, certifications, overhead, profit, or other items required or reasonably inferable to properly and timely perform and complete all work and services to be performed by the Contractor pursuant to this Agreement. Unless specifically stated otherwise, incidental work required to accomplish the work of this Bid Package shall be included the bid. This would include, but not be limited to, temporary facilities, protection of the work, security of equipment, materials, and work in progress, etc. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and Specification sections applicable to each Contractor's scope.
  - 2. Contractor is responsible for all labor and equipment to unload, account for all material delivered, stock, and delivery for this scope of work. Storage and delivery of materials and equipment at the Site shall be permitted only to the extent approved in advance by the Construction Manager, and if anything so stored obstructs the progress of any portion of the work, it shall be promptly removed or relocated by the Contractor without reimbursement.
  - 3. On site supervision by Prime Contractor at all times work by that contractor or their subcontractors/suppliers is taking place.

4. Provide all temporary facilities required for this scope of work including trailer, trailer power, telephone, secured storage, temporary power for work, temporary and task lighting for work, etc. as determined necessary by Contractor. Coordinate location of trailers, material storage and utility lines with Construction Manager. Limited space is available, and permission to bring any such facility or excess materials on to the site shall be approved by the Construction Manager.
5. Contractor shall provide all equipment and tools for Contractor's own cleanup. Clean up shall be done at end of every shift or more frequently if required for the Contractor to perform their work, for other Contractors to perform their work, as required by the Owner's operations, and at the discretion of the Construction Manager.
6. All turf, landscaping, and subgrade disturbances caused by equipment traffic or other activities related to the Contractor's scope shall be repaired or restored to proper conditions by the Contractor.
7. Protect adjacent existing building elements from damage from Scope of work. Repair existing building elements damaged during Contractor's Scope of work.

#### **1.05 WORK HOUR RESTRICTIONS**

- A. Work hours are from 06:00 AM to 04:30 PM, Monday through Friday unless arrangements are made in advance.

#### **1.06 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to areas noted on Drawings.
- B. Provide access to and from site as required by law and Owner:
  1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
  2. Do not obstruct roadways, sidewalks, or other public ways without permission of Owner and permit if required.
- C. Facility will be occupied at all times during duration of work. Contractor personnel shall conduct themselves in an agreeable manner at all times. Failure to do so may result in removal from the work site.

#### **1.07 OWNER OCCUPANCY**

- A. Owner intends to occupy the Project upon Substantial Completion.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

#### **1.08 RULES FOR CONSTRUCTION WORKERS**

- A. The staff of the State of Iowa has a responsibility to protect the public by providing a secure environment. All work site rules must be followed to the letter, at all times.
- B. All construction workers must have a background check completed prior to entering the campus to perform work.
- C. Hot Work Permit Processes and Fire Watch, when necessary, will be adhered to for this project.
- D. All State properties are tobacco free. No smoking will be permitted or tolerated on campus unless in designated areas.
- E. You are permitted access only to the work site and no other area of the institution.
- F. No drugs, alcohol, or firearms are allowed on the work site.
- G. Do not leave money, drugs, alcohol, or firearms in your personal vehicle.
- H. Company and personal vehicles are to be parked and locked in designated or authorized area of the work.
- I. Secure all tools at the end of the day.
- J. Maintain control of all tools, supplies, and debris at all times during the work.

- K. Never leave keys in any vehicle. If a security officer finds keys in a vehicle, they are under orders to turn them in to a security supervisor.
- L. Do not give anything to residents or take anything from residents; if they offer, inform your supervisor.
- M. Secure all tools at the end of each day. Never leave tools unattended. All tools shall be checked in at the beginning of the day and checked out at the end of the day. If security officers find loose tools, they are under orders to turn them in to their supervisor.
- N. All delivery vehicles must go directly to the job site. Extra time should be anticipated for all deliveries. Provide 24-hour notice to the facility of deliveries.
- O. During an emergency, follow the instructions of the security staff.
- P. Contractor shall wear clothing of a different color, pattern, fashion, etc. as to distinguish themselves from inmates.

## 1.09 BID PACKAGE INSTRUCTIONS

- A. **Bid Package #01** – Above Ground Diesel Tank Replacement: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
  1. All work on the contract documents and specifications complete; material and labor including all freight, unloading and installation for a complete scope.
  2. All employees are subject to background checks and must pass the background checks in order to work on the premises.
  3. All employees onsite will be required to attend PREA (Prison Rape Elimination Act) training and take the mandatory assessment following the training.
  4. Demolition and removal of existing foundation extent is unknown. Any concrete deviations from the limits documented in the construction documents are to be documented and any excess time required due to unforeseen conditions are to be tracked on a time and material basis.
  5. Contractor is responsible for filling out Iowa DIAL Aboveground Storage Tank Change of Information Form.
  6. Contractor is responsible for providing a temporary 5,000 gallon diesel tank, protecting existing conditions where temporary tank is to be placed, temporary connections from the temporary tank to the existing facility connections, protecting the temporary diesel tank, and temporary connections throughout the construction process, and removing the existing diesel from the existing tanks into the temporary tank. Existing diesel is to be filtered before placing into the temporary tank. Contractor is responsible for all required permits, registration and inspections associated with the temporary diesel tank. Temporary tank to be operational the same day existing tanks are decommissioned. The facility is required to be on generator power at all times.
  7. Contractor is responsible for cleaning the inside of the existing diesel tanks prior to removal to salvage. Follow all applicable codes and guidelines for extent of cleaning diesel tanks. Contractor to follow all safety protocols required for a confined space
  8. Contractor is to provide crane pick plans to Construction Manager a week prior to mobilization of cranes.
  9. The Contractor shall retain a licensed abatement subcontractor or have trained certified employees to perform the required lead abatement work per Section 00 3126 – Existing Hazardous Material Information. The intent of the lead abatement is to be limited to the existing connection points of the diesel tanks to be able to pick the tanks whole to transport for scraping and disposal. Lead abatement is also required for getting power out of the existing generator room for the new control panel.
  10. Transportation and removal of the existing diesel tanks are the responsibility of the contractor.
  11. Contractor is responsible for all SWPPP measures as outlined in the contract documents.
  12. Contractor is responsible for soil stabilization for soil not disturbed for more than 14 days.
  13. Contractor is responsible for seeding all disturbed soil after completion of construction activities. Work may be required to be complete in the Spring of 2027.

14. Contractor is responsible for coordinating specific tank requirements for anchors, and any other specific requirements that modify what is currently shown in the contract documents.
15. Contractor is responsible for providing 2,000 gallons of diesel for testing and inspection of tanks per the contract documents
16. Contractor is responsible for providing manufacture testing and inspection services as outlined in the contract documents.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

## **SECTION 01 2500**

### **SUBSTITUTION PROCEDURES**

#### **PART 1 - GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Substitution Procedures
- B. Request for Substitution form

#### **PART 2 - PRODUCTS – NOT USED**

#### **PART 3 - EXECUTION**

##### **3.01 SUBSTITUTION PROCEDURES**

- A. Where the Bidding Documents stipulate a specific product be provided by naming one or more manufacturer and model, a substitute product will be considered when written request is received by the date and time identified in Section 00 1113 NOTICE TO BIDDERS. Substitution requests will be considered for all products, even if the specification does not include a statement such as “or equal,” “equal to,” “equivalent to,” or “basis of design,” unless noted otherwise.
- B. References in the Bidding Documents to brand or trade names are intended to illustrate the general characteristics of the item and not to limit competition unless noted otherwise.
- C. The written request shall be on the “Request for Substitution” form included in the Project Manual. If no such form is included, the request shall be provided on the letterhead of the company making the request.
- D. Substitution requests received after the specified date will be viewed in the context of a Change Order to the Contract, and consideration will only be given in the event a product becomes unavailable or not practical due to no fault of the Contractor, or the substitution is substantially to the Owner’s advantage (equal product for less cost or higher quality product at no change in Contract Sum).
- E. Document each substitution request with complete data substantiating compliance of the proposed substitution with the Bidding Documents. Each request shall identify the specified product for which the substitution is requested, and shall clearly describe the product for which approval is requested. The burden shall be on the requester to demonstrate the proposed substitute product’s suitability for use in the Work and its equivalency or superiority in function, appearance, quality, and performance with the product named in the Bidding Documents.
- F. A description of any changes to the Bidding Documents that the proposed substitution will require shall be included with the request. The requester shall affirm that dimensions shown on the Drawings will not be affected by the substitute product, and that it will have no adverse effect on other trades, the construction schedule, or specified warranty requirements. The request for use of a substitute product shall be signed by an authorized representative of the firm submitting the request, who shall state that the firm will pay for any changes to the building design, including Design Professional’s design, detailing, and construction cost caused by the requested substitution if the substitution is approved for use in the Work.
- G. All such substitute products approved for use in the Work during the established period of time before receipt of Bids will be identified in a subsequent Addendum to the Bidding Documents.

##### **3.02 REQUEST FOR SUBSTITUTION FORM**

- A. A Request for Substitution Form is attached following this page.
- B. Substitution requests shall be emailed to the Issuing Officer at the email address provided in Instructions to Bidders Section 1.04.

**END OF SECTION**

# SUBSTITUTION REQUEST FORM

---

Project: \_\_\_\_\_ Substitution Request Number: \_\_\_\_\_  
\_\_\_\_\_  
From: \_\_\_\_\_  
To: \_\_\_\_\_ Date: \_\_\_\_\_  
\_\_\_\_\_  
A/E Project Number: \_\_\_\_\_  
Re: \_\_\_\_\_

---

Specification Title: \_\_\_\_\_ Description: \_\_\_\_\_  
Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

---

Proposed Substitution: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
Trade Name: \_\_\_\_\_ Model No.: \_\_\_\_\_  
\_\_\_\_\_

History:  New product  2-5 years old  5-10 yrs old  More than 10 years old

Differences between proposed substitution and specified product: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Point-by-point comparative data prepared by contractor and attached - REQUIRED BY A/E

---

Reason for not providing specified item: \_\_\_\_\_  
\_\_\_\_\_

Similar Installation:  
Project: \_\_\_\_\_ Architect: \_\_\_\_\_  
Address: \_\_\_\_\_ Owner: \_\_\_\_\_  
\_\_\_\_\_ Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work:  No  Yes; explain \_\_\_\_\_  
\_\_\_\_\_

---

Supporting Data Attached:  Drawings  Product Data  Samples  Tests  Reports  \_\_\_\_\_

---

# SUBSTITUTION REQUEST FORM

(Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: \_\_\_\_\_

Signed by: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Attachments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

---

## A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01 3300.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 3300.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: \_\_\_\_\_

Date: \_\_\_\_\_

---

Additional Comments:     Contractor     Subcontractor     Supplier     Manufacturer     A/E     \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## SECTION 01 2600

### CONTRACT MODIFICATION PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Change procedures

##### 1.02 CHANGE PROCEDURES

- A. The Design Professional will advise of minor changes in the work not involving an adjustment to Contract Sum/Price or contract time as authorized.
- B. The Construction Manager may issue a Proposal Request that includes a detailed description of a proposed change with supplementary or revised drawings and specifications and a change in contract time for executing the change as provided by the Design Professional. The Trade Contractor will prepare and submit an estimate within 7 calendar days. Estimates shall be provided for the project at no cost, regardless of acceptance or rejection of proposal.
- C. The Trade Contractor may propose changes by submitting a Request for Information to the Construction Manager, describing the proposed change and its full effect on the work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and contract time with full documentation and a statement describing the effect on work by separate or other contractors. Document any requested substitutions in accordance with the specifications. Construction Manager will forward the Request for Information on to the Design Professional for their official response.
- D. Stipulated Sum/Price Change Order: Based on executed Change Order and contractor's fixed price quotation.
- E. Unit Price Change Order: The change order will be executed on a fixed unit price basis for pre-determined unit prices and quantities. Changes in contract price or contract time will be computed as specified for time and material change orders.
- F. Time and Material Change Order: The change order will be executed on a not to exceed basis. Design professional and Construction Manager will determine the not to exceed estimated cost based on contractor's proposal for hourly rates and material costs. Maintain detailed records of work done on time and material basis. Time and Material tickets must be submitted daily to the Construction Manager for verification. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the work. Submit itemized account and supporting data after completion of change. A final deductive change order will be issued to reconcile final cost to the initial change order.
- G. Change Order Forms: CONSENSUSDOC Forms provided by Owner.
- H. Execution of Change Orders: The Construction Manager will issue change orders for signature of parties as provided in the Conditions of the Contract.
- I. With respect to pricing change orders, the percentage mark-up for overhead and profit is subject to the following limits:
  - 1. Fifteen (15) percent maximum for work directly performed by employees of the Constructor, Subcontractor or Sub-subcontractor.
  - 2. Five (5) percent maximum for work performed or passed through by a Subcontractor and passed through to the Owner by the Constructor.
  - 3. Five (5) percent maximum Subcontractor's mark-up for Work performed by a Sub-Subcontractor and passed through to the Owner by the Subcontractor and Constructor.
  - 4. The maximum allowable mark-up shall be twenty-five (25) percent passed through to the Owner by the Constructor under any circumstances. Overhead and profit shall be shown separately for the Constructor and each Subcontractor of any tier performing the Change Order Work.
- J. Contractor and subcontractor agree to provide and require all suppliers to provide a detailed breakdown of labor, labor burden, materials, installation, rental, and fuel costs.

K. Please refer to Article 8 of CONSENSUSDOCS 802- STANDARD FORM OR AGREEMENT BETWEEN OWNER AND TRADE CONTRACTOR for additional Change Procedures.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

## SECTION 01 2900

### PAYMENT PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Schedule of values
- B. Application for payment

##### 1.02 SCHEDULE OF VALUES

- A. Coordination: Trade Contractor will coordinate preparation of the Schedule of Values with preparation of the Construction Manager's Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule, and Construction Manager's Construction Schedule.
  - 2. Submit original Schedule of Values in Procore within 14 days after date of Owner-Trade Contractor Agreement. Schedule of Values must be approved by Owner prior to submission for first application for payment.
- B. Format: Utilize the Table of Contents of this project manual. Identify each line item with number and title of the major specification section. Each major specification section should be further itemized by materials cost, labor cost and subcontractor cost for each building separately for the base bid and all accepted alternates. Identify site mobilization, bonds and insurance and include a line item for closeout paperwork for a value of no less than 1% of the total contract value or \$1,000, whichever is greater.
  - 1. Identification: Include the following Project identification on the Schedule of Values:
    - a. Project name and location.
    - b. Name and address of Owner, Trade Contractor, Construction Manager and Design Team.
    - c. DAS Project Number.
    - d. Date of Submittal.
  - 2. Revise the Schedule of Values to list approved Change Orders with each Application for Payment.

##### 1.03 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications for payments as certified by the Design Professional and paid for by Owner.
  - 1. Application for Payment at time of Substantial Completion and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement. Progress payments shall be submitted to the Construction Manager. Any request for payment for work completed prior to June 30<sup>th</sup> of any year needs to be submitted by July 15<sup>th</sup> of the same calendar year.
- C. Payment Application Forms: Use AIA form G702 and G703 as the form for the Application for Payment or an equivalent approved by the owner.
- D. Include lien waiver forms required by the owner when applicable.
- E. Application Preparation: Complete every entry on form. Construction Manager will return incomplete applications without action.
  - 1. Include amounts of Change Orders issued before last day of construction period covered by application.

- F. Waivers of Mechanic's Lien: If requested by Owner with each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment when applicable.
  - 1. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  - 2. Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede submittal of first Application for Payment include the following:
  - 1. Schedule of Values
  - 2. Certificates of insurance and insurance policies.
  - 3. Lists of vendors and any subcontractors.
- H. Application for Payment at Substantial Completion: After the Certificate of Substantial Completion has been fully executed, submit an Application for Payment showing 100 percent completion for the portion of the Work claimed as substantially complete, not including the closeout paperwork line item.
  - 1. Include documentation supporting the claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  - 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
  - 1. Evidence of completion of Project closeout requirements.
  - 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  - 3. Updated final statement, accounting for final changes to the Contract Sum.
  - 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  - 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  - 6. AIA Document G707, "Consent of Surety to Final Payment."
  - 7. Letter of Notification to all sub-contractors and suppliers of application for release of retainage.
  - 8. Evidence that claims have been settled.
- J. Payments will be made to the extent of the value of the work performed in the previous month less a retainage amount of 3% of the value of the work performed. Upon substantial completion for the entire work, a sum sufficient to decrease the total retained to 3% of the contract sum, plus the full amount of the line item for closeout paperwork, plus such other retainage as the engineer shall determine for all incomplete work and unsettled claims will be authorized. The closeout paperwork line item may only be billed once the certificate of final completion has been fully executed.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

## SECTION 01 3100

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Coordination
- B. Pre-construction meeting
- C. Progress meetings
- D. Coordination Meetings
- E. Requests for Interpretation (RFIs)
- F. Background Checks
- G. Utility Locates/Ground Penetrations

##### 1.02 COORDINATION

- A. Coordinate scheduling, submittals, and work of the various sections of the project manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative procedures: The Trade Contractor will coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Trade Contractor's Construction Schedule.
  - 2. Provide updated information for Construction Manager's Construction Schedule.
  - 3. Preparation of Schedule of Values.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Pre-installation conferences.
  - 7. Project closeout activities
- C. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- D. Coordinate space requirements, supports, and installation of mechanical and electrical work, which are indicated diagrammatically on drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- E. In finished areas except as otherwise indicated conceal pipes and wiring within the construction. Coordinate locations of piping with finish elements.
- F. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion.
- G. After owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of owner's activities.
- H. During construction coordinate use of site and facilities through Construction Manager.
- I. Comply with Construction Manager and Owner's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

- J. Make the following types of submittal to Architect through the Construction Manager via Procure:
1. Request for Information/Interpretation.
  2. Request for substitution.
  3. Shop drawings, product data, and samples.
  4. Test and inspection reports.
  5. Design data.
  6. Manufacturer's instructions and field reports.
  7. Applications for payment and change order requests.
  8. Progress schedules.
  9. Coordination drawings.
  10. Correction punch list and final correction punch list for substantial completion
  11. Closeout submittals

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

**3.01 PRE-CONSTRUCTION MEETING**

- A. The Construction Manager and Owner will schedule a meeting after Notice of Award.
- B. Required: Design Professional, Owner, Construction Manager, Trade Contractor and any Sub Contractors.
- C. Agenda:
  1. Execution of Owner-Contractor Agreement.
  2. Submission of executed bonds and insurance certificates.
  3. Distribution of Contract Documents.
  4. Submission of list of subcontractors, list of products, schedule of values, and progress schedule.
  5. Designation of personnel representing the parties in Contract.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, change orders, RFIs and contract closeout procedures
  7. Tentative construction schedule.
  8. Critical work sequencing and long-lead items.
  9. Procedures for testing and inspecting.
  10. Preparation of Record Documents.
  11. Safety Procedures.
  12. Owner's requirements.
  13. Security and housekeeping procedures.
  14. Background Checks.
  15. Responsibility for temporary facilities and controls.
  16. Construction waste management.
  17. Logistics (use of premise, parking, work restrictions, maintain egress, etc.)
- D. The Construction Manager is to record minutes and distribute copies within two days after meeting to participants, with one copy to owner, participants, and those affected by decisions made.

**3.02 PROGRESS MEETINGS**

- A. The Construction Manager shall schedule and administer meetings throughout progress of the work at bi-weekly intervals.
- B. The Construction Manager is to make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings, record minutes and distribute copies within two days to those affected by decisions made.
- C. Attendees may include: Project superintendent, major subcontractors and suppliers, Owner, Construction Manager, Architect/Engineer, as appropriate to agenda topics for each meeting.

All participants at the conference call shall be familiar with the Project and authorized to conclude matters relating to the Work.

D. Agenda:

1. Review minutes of previous meetings.
2. Review the Construction Manager's Construction Schedule.
3. Field observations, problems, and decisions.
4. Identification of problems that impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of RFI's.
7. Review of off-site fabrication and delivery schedules.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on progress schedule and coordination.
13. Other business relating to work.
14. Access, temporary facilities and controls, housekeeping and progress cleaning.
15. Safety.
16. Status of proposal requests, pending changes, official Change Orders.

E. Minutes:

1. Following the meeting, the meeting minutes will be published in Procore by the Construction Manager for all parties.

### **3.03 COORDINATION MEETINGS**

- A. Coordination meetings will be held at the discretion of the construction manager.

### **3.04 REQUESTS FOR INTERPRETATION (RFIs)**

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, prepare and submit an RFI in Procore.
1. RFIs shall originate with Trade Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in the Work.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Specification Section number and title and related paragraphs, as appropriate.
  2. Drawing number and detail references, as appropriate.
  3. Field dimensions and conditions, as appropriate.
  4. Trade Contractor's suggested solution(s). If Trade Contractor's solution(s) impact the Contract Time or the Contract Sum, Trade Contractor shall state impact in the RFI.
  5. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
- C. Design Professional's Action: Design Professional will review each RFI, determine action required, and return it. Allow seven (7) working days for Design Professional's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day. The following RFIs will be returned without action:
1. Requests for approval of submittals.
  2. Requests for approval of substitutions.
  3. Requests for coordination information already indicated in the Contract Documents.
  4. Requests for adjustments in the Contract Time or the Contract Sum.
  5. Requests for interpretation of Design Professional's actions on submittals.
  6. Incomplete RFIs or RFIs with numerous errors.
  7. Design Professional's action may include a request for additional information, in which case Design Professional's time for response will start again.

- D. Design Professional's action on RFIs that may result in a change to the Contract Time or the Contract Sum/Price.
  - 1. If Trade Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Construction Manager in writing within ten (10) days of receipt of the RFI response.
- E. On receipt of Design Professional's response in Procore, review the response and notify Design Professional within seven (7) days if Trade Contractor disagrees with response.

### **3.05 BACKGROUND CHECKS**

- A. Background checks must be performed on all on site employees, including sub-contractors.
- B. The Contractor hereby explicitly authorized the Iowa DAS to conduct criminal history and/or other background investigation(s) of the Contractor, its officers, supervisory personnel, employees, and other staff retained by the Contractor or their sub-contractors for the performance of the contract.
- C. A state of Iowa record check request form will be provided at the pre-construction meeting. Information required may include:
  - 1. Last Name
  - 2. First Name
  - 3. Middle Name
  - 4. Date of Birth
  - 5. State Driver's License or State ID #
  - 6. Social Security #

### **3.06 UTILITY LOCATES/GROUND PENETRATIONS**

- A. Call Iowa One Call at 800-292-8989 to request a locate
  - 1. Requests must be least five (5) working days prior to ground penetration.

**END OF SECTION**

## SECTION 01 3100.01

### WEB BASED CONSTRUCTION MANAGEMENT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Owner and Contractor shall utilize **Procore Technologies, Inc. Procore** system for electronic submittal of all data and documents (unless specified otherwise by the owner's representative) throughout the duration of the Contract. **Procore** is a web-based electronic media site that is hosted by **Procore Technologies, Inc.**, utilizing their **Procore** web solution. **Procore** will be made available to all contractors' project personnel, subcontractor personnel, suppliers, consultants and the Designer of Record. The joint use of this system is to facilitate; electronic exchange of information, automation of key processes, and overall management of the contract. **Procore** shall be the primary means of project information submission and management. When required by the Owners representative, paper documents will also be provided. In the event of discrepancy between the electronic version and paper documents, the paper documents will govern. **Procore** is a registered trademark of **Procore Technologies, Inc.**

##### 1.02 USER ACCESS LIMITATIONS

- A. The Owner's Representative/Construction Manager will control the Contractor's access to **Procore** by allowing access and assigning user profiles to accepted Contractor personnel. User profiles will define levels of access into the system, determine assigned function-based authorizations (determines what can be seen) and user privileges (determines what they can do). Sub-contractors and suppliers will be given access to **Procore** through the Contractor. Entry of information exchanged and transferred between the Contractor and its sub-contractors and suppliers on **Procore** shall be the responsibility of the Contractor.
1. Joint Ownership of Data: Data entered in a collaborative mode (entered with the intent to share as determined by permissions and workflows within the **Procore** system) by the Owner's Representative and the Contractor will be jointly owned.

##### 1.03 AUTOMATED SYSTEM NOTIFICATION AND AUDIT LOG TRACKING

- A. Review comments made (or lack thereof) by the Owner on Contractor submitted documentation shall not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for managing, tracking, and documenting the Work to comply with the requirements of the Contract Documents. Owner's acceptance via automated system notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Contractor's submitted information.

##### 1.04 SUBMITTALS

- A. See Section 01 3300 SUBMITTAL PROCEDURES:  
B. Preconstruction Submittals
1. List of Contractor's key **Procore** personnel. Include descriptions of key personnel's roles and responsibilities for this project. Contractor should also identify their organization's administrator on the list.

##### 1.05 COMPUTER REQUIREMENTS

- A. The Contractor shall use computer hardware and software that meets the requirements of the **Procore** system as recommended by **Procore Technologies, Inc.** to access and utilize

**Procure.** As recommendations are modified by **Procure**, the Contractor will upgrade their system(s) to meet the recommendations or better. Upgrading of the Contractor's computer systems will not be justification for a cost or time modification to the Contract. The contractor will ensure that connectivity to the **Procure** system (whether at the home office or job site) is accomplished through DSL, cable, T-1 or wireless communications systems. The minimum bandwidth requirement for using the system is 128kb/s. It is recommended a faster connection be used when uploading pictures and files into the system. **Procure** supports the current and prior two major versions of Chrome, Firefox, Internet Explorer, and Safari.

- B. The Contractor shall be responsible for the validity of their information placed in **Procure** and for the abilities of their personnel. Accepted users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, cad drawing applications, and Adobe Portable Document Format (PDF) document distribution program. The Contractor shall utilize the existing forms in **Procure** to the maximum extent possible. If a form does not exist in **Procure** the Contractor must include a form of their own or provided by the Owner representative as an attachment to a submittal. Adobe PDF documents will be created through electronic conversion rather than optically scanned whenever possible. The Contractor is responsible for the training of their personnel in the use of **Procure** (outside what is provided by the owner) and the other programs indicated above as needed.
- C. User Access Administration: Provide a list of Contractor's key **Procure** personnel for the Owner's Representative acceptance. Contractor is responsible for adding and removing users from the system. The Owners Representative reserves the right to perform a security check on all potential users. The Contractor will be allowed to add additional personnel and sub-contractors to **Procure**.

#### **1.06 CONNECTIVITY PROBLEMS**

- A. **Procure** is a web-based environment and therefore subject to the inherent speed and connectivity problems of the Internet. The Contractor is responsible for its own connectivity to the Internet. **Procure** response time is dependent on the Contractor's equipment, including processor speed, Internet access speed, etc. and current traffic on the Internet. The Owner will not be liable for any delays associated from the usage of **Procure** including, but not limited to: slow response time, down time periods, connectivity problems, or loss of information. The contractor will ensure that connectivity to the **Procure** system (whether at the home office or job site) is accomplished through DSL, cable, T-1 or wireless communications systems. The minimum bandwidth requirement for using the system is 128kb/s. It is recommended a faster connection be used when uploading pictures and files into the system. Under no circumstances shall the usage of the **Procure** be grounds for a time extension or cost adjustment to the contract.

#### **1.07 TRAINING**

- A. The Construction Manager shall provide the necessary training to the Prime Contractor.

### **PART 2 - PRODUCTS**

#### **2.01 DESCRIPTION**

- A. **Procure** project management application (no equal) Provided by Procure Technologies, Inc. [www.Procure.com](http://www.Procure.com)

## PART 3 - EXECUTION

### 3.01 PROCORE UTILIZATION

- A. **Procore** shall be utilized in connection with submittal preparation and information management required by Sections:
1. PROJECT MANAGEMENT AND COORDINATION
  2. CONSTRUCTION PROGRESS DOCUMENTATION
  3. SUBMITTAL PROCEDURES
  4. QUALITY REQUIREMENTS
  5. Other Division One sections.
  6. Requirements of this section are in addition to requirements of all other sections of the specifications.
- B. Design Document Submittals
1. All design drawings and specifications shall be submitted as cad .dwg files or PDF attachments to the **Procore** submittal work flow process and form.
- C. Shop Drawings
1. Shop drawing and design data documents shall be submitted as cad .dwg files or PDF attachments to the **Procore** submittal work flow process and form. Examples of shop drawings include, but are not limited to:
  2. Standard manufacturer installation drawings.
  3. Drawings prepared to illustrate portions of the work designed or developed by the Contractor.
  4. Steel fabrication, piece, and erection drawings.
- D. Product Data
1. Product catalog data and manufacturer's instructions shall be submitted as
  2. PDF attachments to the **Procore** submittal work flow process and form. Examples of product data include, but are not limited to:
  3. Manufacturer's printed literature.
  4. Preprinted product specification data and installation instructions.
- E. Samples
1. Sample submittals shall be physically submitted as specified in Section 01 3300 SUBMITTAL PROCEDURES. Contractor shall enter submittal data information into **Procore** with a copy of the submittal form(s) attached to the sample. Examples of samples include, but are not limited to:
  2. Product finishes and color selection samples.
  3. Product finishes and color verification samples.
  4. Finish/color boards.
  5. Physical samples of materials.
- F. Administrative Submittals
1. All correspondence and pre-construction submittals shall be submitted using **Procore**. Examples of administrative submittals include, but are not limited to:
  2. Digging permits and notices for excavation.
  3. List of product substitutions
  4. List of contact personnel.
  5. Notices for roadway interruption, work outside regular hours, and utility cut overs.
  6. Requests for Information (RFI).
  7. Construction progress Schedules and associated reports and updates.
    - a. Each schedule submittal specified in CONSTRUCTION PROGRESS DOCUMENTATION shall be submitted as a native backed-up file (.PRX or .STX) of the scheduling program being used. The schedule will also be posted as a PDF

- file in the format.
8. Plans for safety, demolition, environmental protection, and similar activities.
  9. Quality Control Plan(s), Testing Plan and Log, Quality Control Reports, Production Reports, Quality Control Specialist Reports, Preparatory Phase Checklist, Initial Phase Checklist, Field Test reports, Summary reports, Rework Items List, etc.
  10. Meeting minutes for quality control meetings, progress meetings, pre-installation meetings, etc.
  11. Any general correspondence submitted.
- G. Compliance Submittals
1. Test reports, certificates, and manufacture field report submittals shall be submitted on **Procore** as PDF attachments. Examples of compliance submittals include, but are not limited to:
    - a. Field test reports.
    - b. Quality Control certifications.
    - c. Manufacturer's documentation and certifications for quality of products and materials provided.
- H. Record and Closeout Submittals
1. Operation and maintenance data and closeout submittals shall be submitted on **Procore** as PDF documents during the approval and review stage as specified, with actual set of documents submitted for final. Examples of record submittals include, but are not limited to:
    - a. Operation and Maintenance Manuals: Final documents shall be submitted as specified.
    - b. As-built Drawings: Final documents shall be submitted as specified.
    - c. Extra Materials, Spare Stock, etc.: Submittal forms shall indicate when actual materials are submitted.
- I. Financial Submittals
1. Schedule of Value, Pay Applications and Change Request Proposals shall be submitted on **Procore**. Supporting material for Pay Applications and Change Requests shall be submitted on **Procore** as PDF attachments. Examples of compliance submittals include, but are not limited to:
    - a. Contractors Schedule of Values
    - b. Contractors Monthly Progress Payment Requests
    - c. Contract Change proposals requested by the project owner

**END OF SECTION**

## SECTION 01 3200

### CONSTRUCTION PROGRESS DOCUMENTATION

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Construction Progress Schedule
- B. Construction Manager's Construction Schedule
- C. Submittal Schedule
- D. Daily Construction Reports
- E. Progress Photographs

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 CONSTRUCTION MANAGER'S MASTER CONSTRUCTION SCHEDULE

- A. Upon award of package, Contractor agrees to accept and meet or improve upon the schedule proposed in section **00 3113 PRELIMINARY SCHEDULE** with intermediate handoffs. Each package contractor will be required to participate in schedule coordination meetings with the Construction Manager.
- B. If the bid package contractor does not meet the handoff milestones in the master construction schedule, the bid package contractor shall take measures to increase work forces, increase work hours, initiate revisions to means and methods of construction, and/or other similar measures as required to make up lost time and complete the work in accordance with the construction schedule and remain consistent with project progress and overall construction schedule. Such measures shall be at no additional cost to the Owner. The Construction Manager shall have sole discretion on decisions to accelerate work.
- C. Updating the master construction schedule – Contractors are required to attend and participate in schedule coordination update meetings with the Construction Manager. This will be an opportunity for contractors to further define their scheduled scope of work in conjunction with other trades on site.
- D. Acceptance of revised master construction schedule – After an updated master construction schedule has been issued via Procore, Contractors will have 48 hours to dispute the new schedule. All contractors will be held to the last fully accepted master construction schedule.

##### 3.02 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit preliminary outline to the Construction Manager no later than 48 hours prior to the pre-construction meeting for coordination with Owner's requirements.
- B. Submit revised progress schedule with each application for payment.
- C. Schedules will be electronically submitted through Procore.
- D. Distribute copies of reviewed schedules to project site file, subcontractors, suppliers, and other concerned parties.
- E. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- F. Submit computer generated horizontal bar chart with separate line for each major portion of work or operation, identifying the first day of each week.
- G. Show complete sequence of construction activity, identifying work of separate stages and other

logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.

- H. Indicate estimated percentage of completion for each item of work at each submission.
- I. Participate in joint review and evaluation of schedule with Construction Manager.
- J. Revisions to schedules:
  - 1. Indicate progress of each activity to date of submittal and projected completion date of each activity.
  - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
  - 3. Prepare narrative report to define problem areas, anticipate delays, and impact on schedule. Report corrective action taken, or proposed, and its effect including effect of changes on schedules of separate contractors.

### 3.03 **SUBMITTAL SCHEDULE**

- A. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrications, and delivery when establishing dates.
  - 1. Coordinate submittal schedule with list of subcontractors, the schedule of values, and construction schedule.
  - 2. Submit concurrently with first complete submittal of contractor's construction schedule.

### 3.04 **DAILY CONSTRUCTION REPORTS**

- A. Daily Construction Reports: Submitted at weekly intervals.
  - 1. Daily Construction Reports will be submitted to Construction Manager.
- B. Prepare a daily construction report recording the following information concerning events at project site:
  - 1. Count of personnel at Project site
  - 2. Equipment at Project site
  - 3. Material Deliveries
  - 4. High and low temperatures and general weather conditions, including presence of rain or snow
  - 5. Accidents
  - 6. Meetings and significant decisions
  - 7. Unusual events
  - 8. Stoppages, delays, shortages, and losses
  - 9. Meter readings and similar recordings
  - 10. Emergency procedures
  - 11. Orders and requests of authorities having jurisdiction
  - 12. Change orders received and implemented
  - 13. Services connected and disconnected
  - 14. Equipment or system tests and startups
  - 15. Partial completions and occupancies
  - 16. Substantial completions authorized

### 3.05 **PROGRESS PHOTOGRAPHS**

- A. Progress photographs will be electronically submitted through Procore.
- B. Preconstruction Photographs: Before starting construction, take photographs of project site and surrounding properties, including existing items to remain during construction, from different

vantage points, as directed by Construction manager.

1. Take additional photographs as required to record existing damage to site, structure, equipment, or finishes.
- C. Periodic Construction Photographs: Take photographs at regular intervals. Select vantage points to show status of construction and progress since last photographs were taken.
- D. Field Completion Construction Photographs: Take photographs after date of Substantial Completion for submission as project record documents. Construction manager will inform of desired vantage points.

**END OF SECTION**

## SECTION 01 3300

### SUBMITTAL PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Submittals for Review
- B. Submittals for Information
- C. Submittal Procedures
- D. Samples

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 SUBMITTALS FOR REVIEW

- A. When the following are specified in individual sections, submit them for review:
  - 1. Product Data
  - 2. Shop Drawings
  - 3. Samples for Selection
  - 4. Samples for Verification
- B. Submit to Construction Manager to forward to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record document purposes.

##### 3.02 SUBMITTALS FOR INFORMATION

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Construction Manager, Architect, and Owner's knowledge. No action will be taken.

##### 3.03 SUBMITTAL PROCEDURES

- A. Submittals will be electronically submitted through Procore. Contractor will be invited to join web based program after issue of Notice of Intent to award.
- B. Shop Drawing Procedures:
  - 1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
  - 2. Do not reproduce the Contract Documents to create shop drawings.

3. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.
- C. Transmit each submittal with a copy of approved submittal form.
- D. Sequentially number the submittal form. Revise submittals with original number and a sequential numeric suffix.
- E. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
- F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the work and Contract Documents.
- G. Schedule submittals to expedite the project and coordinate submission of related items.
- H. For each submittal review, allow 15 days excluding delivery time to and from the contractor.
- I. Identify variations from the Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
- J. When revised for resubmission, identify all changes made since previous submission.
- K. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- L. Submittals not requested will not be recognized or processed.

#### 3.04 **SAMPLES**

- A. Submit to Construction Manager to forward to Architect/Engineer for review for limited purpose for checking conformance with information given and design concept expressed in the Contract Documents.
- B. Samples for selection as specified in product sections:
  1. Submit to Construction Manager to forward to Architect/Engineer for aesthetic, color, or finish selections.
  2. Submit samples of finishes from full range of manufacturer's standard colors, textures, and patterns to Construction Manager to forward to Architect/Engineer for selection.
- C. Submit samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Include identification on each sample, with full project information.
- E. Submit number of samples specified in individual specification sections.
- F. Photograph of submitted samples, along with transmittal sheet, shall be uploaded as a submittal in Procore.

**END OF SECTION**

## SECTION 01 4000

### QUALITY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. References
- B. Quality assurance and control of installation
- C. Tolerances
- D. Defect Assessment
- E. Inspection and testing laboratory services
- F. Manufacturer's field services and reports

##### 1.02 REFERENCES

- A. Conform to reference standard in effect at date of contract.
- B. When required by contract documents, obtain copies of standards.
- C. Should specified reference standards conflict with contract documents request clarification from engineer before proceeding.
- D. The contractual relationship of the parties to the contract shall not be altered from the contract documents by mention or inference otherwise in any reference document.

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with contract documents, request clarification from the engineer prior to proceeding.
- D. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stress, vibration, physical distortion, or disfiguration.

##### 3.02 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with contract documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

##### 3.03 DEFECT ASSESSMENT

- A. Replace work or portions of work not conforming to specified requirements.

- B. If, in the option of the Owner, it is not practical to remove and replace the work, Architect will direct an appropriate remedy or recommend adjusted payment.

### **3.04 INSPECTION AND TESTING**

- A. Owner shall include and pay for all required special inspections and testing required by IBC Section 1705, if applicable. This does not include inspections and testing required by other specification sections in this Project Manual. Copies of all testing and inspection reports shall be submitted to the Construction Manager and Design Professional by the testing and inspection agency.
- B. Testing Agency Duties:
  - 1. Provide qualified personnel at site. Cooperate with Architect, Construction Manager, and contractor in performance of services.
  - 2. Perform specified sampling and testing of products in accordance with specified standards.
  - 3. Ascertain compliance of materials and mixes with requirements of contract documents.
  - 4. Immediately notify the Construction Manager and contractor of observed irregularities or non-conformance of work or products.
  - 5. Perform additional testing and inspections required by the Owner
- C. Limits on Testing Agency/Inspection Agency Authority:
  - 1. Agency may not release, revoke, alter, or enlarge on requirement of contract documents.
  - 2. Agency may not approve or accept any portion of the work.
  - 3. Agency may not assume any duties of the contractor.
  - 4. Agency has no authority to stop the work.
- D. Contractor responsibilities:
  - 1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
  - 2. Cooperate with laboratory personnel, and provide access to the work and to manufacturer's facilities.
  - 3. Provide incidental labor and facilities:
    - a. To provide access to work to be tested/inspected.
    - b. To obtain and handle samples at the site or at source of products to be tested/inspected.
    - c. To facilitate test/inspections.
    - d. To provide storage and curing of test samples.
  - 4. Notify Construction Manager and laboratory 24 hours prior to expected time for operations requiring testing/inspection.
- E. Re-testing required because of non-conformance to specified requirements shall be performed by the same testing agency on instruction by Architect/Construction Manager.
- F. Re-testing required because of non-conformance to specified requirements shall be paid for by the Contractor.

### **3.05 MANUFACTURER'S FIELD SERVICES AND REPORTS**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start up of equipment, test, adjust and balance of equipment as applicable and to initiate instructions when necessary.
- B. Individuals are to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to the manufacturers' written instructions.
- C. Submit report in duplicate within 30 days of observation to Construction Manager for review.

### **END OF SECTION**

## SECTION 01 5000

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Temporary Utilities
- B. Temporary Sanitary Facilities
- C. Telephone Service
- D. Removal of Utilities, Facilities, and Controls
- E. Temporary Facilities
- F. Equipment
- G. Vehicular Access and Parking
- H. Traffic Regulation
- I. Barriers
- J. Enclosures and Fencing
- K. Waste Removal

##### 1.02 TEMPORARY UTILITIES

- A. Owner will provide the following:
  - 1. Electrical Power, consisting of connection to existing facilities.
  - 2. Water Supply, consisting of connection to existing facilities.
- B. The Contractor shall pay for installation, maintenance, and removal of temporary utilities. Temporary utilities shall not disrupt the Facility's need for continuous service.

##### 1.03 TEMPORARY SANITARY FACILITIES

- A. The use of owner facilities is acceptable.
- B. Maintain daily in clean and sanitary condition.

##### 1.04 TELEPHONE SERVICE

- A. Provide, maintain, and pay for telephone service to field or use a cellular telephone.

##### 1.05 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

- A. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

#### PART 2 - PRODUCTS

##### 2.01 TEMPORARY FACILITIES

- A. Field Offices: Coordinate with Construction Manager and Owner if applicable.

##### 2.02 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated, with class and extinguishing agent as required by locations and classes of fire exposures.

#### PART 3 - EXECUTION

##### 3.01 VEHICULAR ACCESS AND PARKING

- A. Use designated existing on-site roads for construction traffic.
- B. Parking is as directed by Owner.
- C. When site space is not adequate, provide additional off-site parking.
- D. Use of designated existing on-site streets and driveways used for construction traffic is permitted. Track vehicles not allowed on paved areas.
- E. Use of designated areas of existing parking facilities used by construction personnel as permitted.
- F. Do not allow heavy vehicles or construction equipment in parking areas.
- G. Provide and maintain access to fire hydrants, free of obstructions.
- H. Provide means of removing mud from vehicle wheels before entering streets.

### **3.02 TRAFFIC REGULATION**

- A. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- B. Flares and lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- C. Haul Routes:
  1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
- D. Removal:
  1. Remove equipment and devices when no longer required.
  2. Repair damage caused by demolition.

### **3.03 BARRIERS**

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for Owner's use of site and to protect existing facilities and adjacent properties from damage during construction operations.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

### **3.04 ENCLOSURES AND FENCING**

- A. Provide temporary enclosure and fences as necessary to protect the public and secure the site.
  1. This includes, but is not limited to around excavations or fresh concrete
- B. Provide security and facilities to protect work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

### **3.05 WASTE REMOVAL**

- A. Except for items or materials to be salvaged, recycled or otherwise reused, remove waste materials from project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Waste Disposal Facilities: Provide waste collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

## **END OF SECTION**

## SECTION 01 6000

### PRODUCT REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. General product requirements
- B. Product options
- C. Maintenance materials
- D. Transportation and handling
- E. Storage and protections

#### PART 2 - PRODUCTS

##### 2.01 GENERAL PRODUCT REQUIREMENTS

- A. Provide new products unless specifically required or permitted by the contract documents.
- B. Do not use products having any of the following characteristics:
  - 1. Made using or containing CFC's or HCFC's
  - 2. Made of wood from newly cut old growth timber.
- C. Where all other criteria are met, contractor shall give preference to products that:
  - 1. If used on interior, have lower emissions
  - 2. If wet-applied, have lower VOC content
  - 3. Are extracted, harvested, and/or manufactured closer to the location of the project
  - 4. Have longer documented life span under normal used
  - 5. Result in less construction waste
  - 6. Are made of vegetable materials that are rapidly renewable

##### 2.02 PRODUCT OPTIONS

- 1. Products specified by reference standards or by description only: Use of any product meeting those standards or description.
- 2. Products specified by naming one or more manufacturers, with or without a provision for substitutions: Use a product of one of the manufacturers named and meeting specifications or submit a request for substitution for any manufacturer not named by the date specified in this project manual. Substitution requests shall be emailed to the Issuing Officer at the email address provided in Instructions to Bidders Section 1.04.

##### 2.03 MAINTENANCE MATERIALS

- 1. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- 2. Deliver to project site; obtain receipt prior to final payment.

#### PART 3 - EXECUTION

##### 3.01 TRANSPORTATION AND HANDLING

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

### **3.02 STORAGE AND PROTECTIONS**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to the product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturers' warranty conditions, if any.
- H. Cover product subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

## SECTION 01 7300

### EXECUTION

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Examination, preparation, and general installation procedures
- B. Alteration project procedures
- C. Cutting and patching
- D. Cleaning and protection
- E. Adjusting

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 EXAMINATION, PREPARATION, AND GENERAL INSTALLATION PROCEDURES

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misproduction.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to cutting: Examine existing conditions prior to commencing work; include elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.
- G. Clean substrate surfaces prior to applying next material or substance.
- H. Seal cracks or openings of substrate prior to applying next material or substance.
- I. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.
- J. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- K. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- L. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- M. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- N. Make neat transitions between different surfaces, maintaining texture and appearance.

##### 3.02 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in product sections match existing products and work for patching and extending work.
- B. Employ skilled and experienced installer to perform alteration work.
- C. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- D. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished work.
- E. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finished to original condition.

- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Refinish visible existing surfaces to remain in renovated rooms and spaces to specified condition for each material with a neat transition to adjacent finishes.
- H. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- I. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line of division and make recommendation to the Construction Manager. Prior to cutting get the Owner's approval.
- J. Where change of plane of ¼ inch or more occurs, submit recommendation for providing smooth transition to the Construction Manager for review.

### **3.03 CUTTING AND PATCHING**

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affect:
  - 1. Structural integrity of element.
  - 2. Integrity of weather-exposed or moisture-resistant elements.
  - 3. Efficiency, maintenance, or safety of element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work of owner or separate contractor.
- C. Execute cutting, fitting, and patching to complete work, and to:
  - 1. Fit the several parts together, to integrate with other work.
  - 2. Uncover work to install or correct ill-timed work.
  - 3. Remove and replace defective and non-conforming work.
  - 4. Remove samples of installed work for testing.
  - 5. Provide openings in elements of work for penetrations of mechanical and electrical work.
- D. Execute work by methods to avoid damage to other work and which will provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill.
- F. Cut masonry and concrete materials using masonry saw or core drill.
- G. Restore work with new products in accordance with requirements of Contract Documents.
- H. Fit work tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- I. Maintain integrity of wall, ceiling or floor construction; completely seal voids.
- J. Refinish surfaces to match adjacent finishes. Refinish to nearest intersection for continuous surfaces. Refinish entire unit for continuous surfaces for an assembly.
- K. Identify hazardous substances or conditions exposed during the work to the engineer for decision or remedy.

### **3.04 CLEANING AND PROTECTION**

- A. Progress cleaning
  - 1. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
  - 2. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.
- B. Protection of installed work
  - 1. Protect installed work from damage by construction operations.
  - 2. Provide special protection where specified in individual specification sections.
  - 3. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
  - 4. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.
  - 5. Prohibit traffic from landscaped areas.

**3.05 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

**END OF SECTION**

## SECTION 01 7700

### CLOSEOUT PROCEDURES

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Inspections
- B. Substantial Completion
- C. Project Record Documents
- D. Warranties
- E. Operations and Maintenance Manuals
- F. Operations and Maintenance Data for Materials and Finishes
- G. Operations and Maintenance Data for Equipment and Systems
- H. Training
- I. Final Completion
- J. Maintenance

#### PART 2 - PRODUCTS – NOT USED

#### PART 3 - EXECUTION

##### 3.01 INSPECTIONS

- A. Ensure all state inspections have been completed by the authority having jurisdiction.
- B. Upload documentation of all test/inspections to Procore.
- C. Submit a written request for inspection of Substantial Completion. On receipt of request, The Design Professional will either proceed with inspection or notify contractor of unfulfilled requirements. The Design Professional will prepare the Certificate of Substantial Completion after inspection or will notify contractor of items, either on contractor's list or additional items identified by architect that must be completed or corrected before certificate will be issued.
  - 1. Re-inspection: Request re inspection when the work identified in previous inspections as incomplete is completed or corrected.
  - 2. Results of completed inspection will form the basis of requirements for Final Completion.

##### 3.02 SUBSTANTIAL COMPLETION

- A. A substantial completion checklist is attached for reference following this specification section.
- B. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to the Construction Manager through upload to Procore.
- C. Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
  - 1. Submit written certification that contract documents have been reviewed, work has been inspected, and that work is completed in accordance with contract documents and ready for review
  - 2. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the work has not been completed.
  - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 4. Make final changeover of permanent locks and deliver key to the owner. Advise owner's personnel of changeover in security provisions.
  - 5. Complete startup testing of systems.
  - 6. Submit test/adjust, balance records.
  - 7. Terminate and remove temporary facilities from project site, along with mockups, construction tools, and similar elements.

8. Advise owner of changeover in heat and other utilities.
9. Submit changeover information related to owner's occupancy, use, operation, and maintenance.
10. Complete final cleaning requirements, including touch up painting.
11. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

### **3.03 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the work:
  1. Drawings
  2. Specifications
  3. Addenda
  4. Change orders and other modifications to the contract
  5. Reviewed shop drawings, product data, and samples
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  1. Manufacturer's name and product model and number.
  2. Product substitutions or alterations utilized.
  3. Changes made by Addenda and modifications.
- F. Record Drawings:
  1. Measured depths of foundations in relation to finish first floor datum.
  2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
  4. Field changes of dimension and detail.
  5. Details not on original contract drawings.
- G. Record Drawings shall be uploaded to Procore in pdf format.

### **3.04 WARRANTIES**

- A. Submit written warranties for designated portions of the work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Submit properly executed warranties in Procore prior to Final Completion.
- C. Verify that documents are in proper form, contain full information, and are notarized.
- D. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- E. Include warranties in operation and maintenance manuals.
- F. Items of work delayed beyond date of Substantial Completion, provide updated submittal after acceptance by Owner, listing date of acceptance as start of warranty period

### **3.05 OPERATIONS AND MAINTENANCE MANUALS**

- A. Format: Submit operations and maintenance manuals in the following format:
  1. Portable Document Format (PDF) electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Owner and upload to Procore.
    - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.

2. Assemble with data arranged in the same sequence as, and identified by the specification sections. Where systems involve more than one specification section, provide separate index for each system.
  3. Include project directory listing title and address of project, names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.
  4. Include Table of Contents listing every item separated by index and specification section.
- B. Source Data: For each product or system, list names, addresses, and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
  - C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
  - D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use project record documents as maintenance drawings.
  - E. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

### **3.06 OPERATIONS AND MAINTENANCE DATA FOR MATERIALS AND FINISHES**

- A. For each product, applied material, and finish:
  1. Product data, with catalog number, size, composition, and color and texture designations.
  2. Information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional information as specified in individual product specification sections.
- E. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specified products.

### **3.07 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS**

- A. For each item of equipment and each system:
  1. Description of unit or system, and component parts
  2. Identify function, normal operating characteristics, and limiting conditions
  3. Include performance curves, with engineering data and tests
  4. Complete nomenclature and model number of replacement parts.
- B. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specified products.
- C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- D. Include color coded wiring diagrams as installed.
- E. Operating procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- F. Maintenance requirements: Include routine procedure and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- G. Provide servicing and lubrication schedule and list of lubricants required.
- H. Include manufacturer's printed operation and maintenance instructions.
- I. Include sequence of operation by controls manufacturer.

- J. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- K. Provide control diagrams by controls manufacturer as installed.
- L. Provide contractor's coordination drawings, with color coded piping diagrams as installed.
- M. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- N. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- O. Include test and balancing reports.
- P. Additional requirements: As specified in individual specification sections.

### **3.08 TRAINING**

- A. Demonstrate operations of systems, subsystems, and equipment.
- B. Train in operation and maintenance of systems, subsystems, and equipment
- C. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- D. Submit written agenda to Construction Manager for approval prior to scheduling training.
- E. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

### **3.09 FINAL COMPLETION**

- A. A final completion checklist is attached for reference following this specification section.
- B. Before requesting final inspection for determining date of Final Completion, complete the following:
  - 1. Complete punch list items.
  - 2. Prepare and submit project record documents, operation and maintenance manuals, damage or settlement surveys, and similar final record information.
  - 3. Deliver tools, spare parts, extra materials, and similar items to location designated by owner. Label with manufacturer's name and model number where applicable.
  - 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
  - 5. All trailers, construction signs, unused, broken or demolition materials have been removed from the site and the premises returned to the original condition in the opinion of the Owner and Design Professional.
  - 6. Submit a final Application for Payment (retainage).
- C. Upon receipt of final payment complete final completion certificate in Procure.

**END OF SECTION**

## Substantial Completion Project Checklist

Date: \_\_\_\_\_

DAS Project Number: \_\_\_\_\_

Project Title: \_\_\_\_\_

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

In order to process the 99% payment (100% pay app less closeout and retainage) on a Capital Project, the Department of Administrative Services needs the following information. Please complete this form and obtain the necessary documents.

**Have all state inspections been completed and documentation uploaded to Procore?**  
*(Including but not limited to the following inspections)*

**Boiler Inspection**  Yes  No  N/A

**Water Heater Inspection**  Yes  No  N/A

**Energy Code Inspection**  Yes  No  N/A

**Building Code Inspection**  Yes  No  N/A

**Electrical Inspection**  Yes  No  N/A

**Elevator Inspection**  Yes  No  N/A

**Other: \_\_\_\_\_**  Yes  No  N/A

**Occupancy Permit if applicable**

**Test and Balance has been performed**

**Certificate of Substantial Completion in Procore (Consensus Docs 814)**

**Are there any disputes with the above mentioned vendor which need resolution?**

**Yes (provide description below)**  **No**

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Can payment (less closeout and retainage) be released?  Yes  No

## Final Completion Project Checklist

Date: \_\_\_\_\_

DAS Project Number: \_\_\_\_\_

Project Title: \_\_\_\_\_

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

In order to process the 100% payment and Retainage payment on a Capital Project, the Department of Administrative Services needs the following information. Please complete this form and obtain the necessary documents.

Have all Warranties been received?  Yes  No

Have the Operations and Maintenance Manuals been received?  Yes  No

Who is in possession of the O & M Manuals? \_\_\_\_\_

Has all training been completed?  Yes  No

Have all as-built drawings been scanned and uploaded into Procore?  Yes  No

Have electronic drawing/specification files been transferred to DAS?  Yes  No

Have all Test & Balance reports been received?  Yes  No

Have all punchlist items been corrected?  Yes  No

**573 Notification** (*To be obtained from the general contractor*): Copy of general contractor's notification of application for retainage to all subcontractors and suppliers. General contractor must follow IAC 26 section 23.13.2.

**AIA Form G706 – Contractor's Affidavit of Payment of Debts and Claims**

**AIA Form G706A – Contractor's Affidavit of Release of Liens**

**AIA Form G707 – Consent of Surety Company to Final Payment**

Certificate of Final Completion in Procore (Consensus Docs 815)

Are there any disputes with the above mentioned vendor which need resolution?

Yes (provide description below)  No

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Can 100% payment and retainage payment be released?  Yes  No

**SECTION 03 10 00  
CONCRETE FORMING AND ACCESSORIES**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Formwork for cast-in-place concrete.
  - 2. Shoring, bracing, and anchorage.
  - 3. Form accessories.
  - 4. Form stripping.
  - 5. Patching and sealing.
  
- B. Related Requirements:
  - 1. Section 03 20 00 - Concrete Reinforcing: Reinforcing steel and required supports for cast-in-place concrete.
  - 2. Section 03 30 00 - Cast-in-Place Concrete: Cast-in-place or in-situ concrete for structural building frame, slabs-on-grade, and other concrete components associated with building.
  - 3. Section 05 50 00 - Metal Fabrications: Product requirements for metal fabrications for placement by this Section.

**1.2 REFERENCE STANDARDS**

- A. American Concrete Institute:
  - 1. ACI 117 - Specification for Tolerances for Concrete Construction and Materials.
  - 2. ACI 301 - Specifications for Structural Concrete.
  - 3. ACI 318 - Building Code Requirements for Structural Concrete.
  - 4. ACI 347 - Guide to Formwork for Concrete.
  
- B. American Forest & Paper Association:
  - 1. AF&PA - National Design Specification (NDS) for Wood Construction.
  
- C. APA - The Engineered Wood Association:
  - 1. APA/EWA PS 1 - Voluntary Product Standard - Structural Plywood.
  
- D. ASTM International:
  - 1. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
  - 2. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
  
- E. West Coast Lumber Inspection Bureau:
  - 1. WCLIB - Standard No. 17 Grading Rules for West Coast Lumber.

**1.3 QUALITY ASSURANCE**

- A. Perform Work according to ACI 347, 301, and 117.
  
- B. For wood products furnished for Work of this Section, comply with AF&PA.
  
- C. Allowable tolerances: Construct and maintain forms to produce concrete dimensions not to exceed tolerances specified under ACI 117.

**1.4 DELIVERY, STORAGE, AND HANDLING**

Store materials off ground in ventilated and protected manner to prevent deterioration from moisture.

**PART 2 PRODUCTS**

**2.1 WOOD FORM MATERIALS**

- A. Plywood:
1. Species: Douglas fir, exterior type, concrete form plywood, 5/8" minimum thickness.
  2. Grade: B-B Class I or II.
  3. Edges: Clean and true.

**2.2 PREFABRICATED FORMS**

- A. Steel Forms:
1. Description: Sheet steel, suitably reinforced.
  2. Surfaces equal to Douglas fir, exterior type, concrete form plywood.

**2.3 FORMWORK ACCESSORIES**

- A. Form Ties:
1. Type leaving no metal within 1" of finished surface after removal of forms, unless specified otherwise.
- B. Form Release Agent:
1. Description: Colorless mineral oil that will not stain concrete or absorb moisture [or impair natural bonding or color characteristics of coating intended for use on concrete].
  2. Manufacturers:
    - a. "Nox-Crete Form Coating," by Nox-Crete Chemicals, or equal.
- C. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Size, strength, and character to maintain formwork in place while placing concrete.
- D. Waterstop:
1. Manufacturers:
    - a. Greenstreak PVC Waterstop Profile #781 for new cast-in-place applications, and Profile #609 for retrofit applications, or equal.
- E. Controlled Expansion Strip-Applied Waterstop:
1. Description: Flexible strip (1" x 3/4") of bentonite waterproofing compound in coil form for joints in concrete construction.
  2. Manufacturers:
    - a. Greenstreak Swellstop, or equal.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify lines, levels, and centers before proceeding with formwork.
- B. Verify that dimensions agree with Drawings.
- C. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement, request instructions from Owner's Representative before proceeding.

**3.2 INSTALLATION**

- A. Formwork:
1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless it can be demonstrated that top forms can be omitted.

2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
  3. Camber forms where necessary to produce level finished soffits unless indicated otherwise on Drawings.
  4. Positioning:
    - a. Carefully verify horizontal and vertical positions of forms.
    - b. Correct misaligned or misplaced forms before placing concrete.
  5. Complete wedging and bracing before placing concrete.
  6. Erect formwork, shoring, and bracing to achieve design requirements according to ACI 301.
  7. Stripping:
    - a. Arrange and assemble formwork to permit dismantling and stripping.
    - b. Do not damage concrete during stripping.
    - c. Permit removal of remaining principal shores.
  8. Obtain approval of Owner's Representative before framing openings in structural members not indicated on Drawings.
  9. Reuse form material only if clean and undamaged.
  10. Do not patch formwork.
  11. Leave forms in place for minimum number of days according to ACI 347.
- B. Form Removal:
1. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads, and removal has been approved by Owner's Representative.
  2. Loosen forms carefully; do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
  3. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged.
  4. Discard damaged forms.
  5. Form Release Agent:
    - a. Apply according to manufacturer instructions.
    - b. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
    - c. Do not apply form release agent if concrete surfaces are indicated to receive special finishes may be affected by agent.
    - d. Soak inside surfaces of untreated forms with clean water, and keep surfaces coated prior to placement of concrete.
  6. Form Cleaning:
    - a. Clean forms as erection proceeds to remove foreign matter within forms.
    - b. Clean formed cavities of debris prior to placing concrete.
    - c. Flush with water or use compressed air to remove remaining foreign matter.
    - d. Ensure that water and debris drain to exterior through cleanout ports.
    - e. Cold Weather:
      - 1) During cold weather, remove ice and snow from within forms.
      - 2) Do not use de-icing salts.
      - 3) Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure; use compressed air or other dry method to remove foreign matter.
  7. Reuse and Coating of Forms:
    - a. Thoroughly clean forms and reapply form coating before each reuse.
    - b. For exposed Work, do not reuse forms with damaged faces or edges.
    - c. Apply form coating to forms according to manufacturer instructions.
    - d. Do not coat forms for concrete indicated to receive "scored finish."
    - e. Apply form coatings before placing reinforcing steel.
- C. Forms for Smooth Finish Concrete:
1. Use steel, plywood, or lined-board forms.
  2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
  3. Install form lining with close-fitting square joints between separate sheets without springing into place.

4. Use full-sized sheets of form liners and plywood wherever possible.
  5. Tape joints to prevent protrusions in concrete.
  6. Apply forming and strip wood forms in a manner to protect corners and edges.
  7. Level and continue horizontal joints.
  8. Keep wood forms wet until stripped.
- D. Form Anchors and Hangers:
1. Do not use anchors and hangers leaving exposed metal at concrete surface.
- E. Inserts, Embedded Parts, and Openings:
1. Install formed openings for items to be embedded in or passing through concrete Work.
  2. Locate and set in place items required to be cast directly into concrete.
  3. Install accessories straight, level, and plumb, and ensure that items are not disturbed during concrete placement.
  4. Joints:
    - a. Install waterstops continuous without displacing reinforcement.
    - b. Heat-seal joints watertight.
  5. Openings:
    - a. Provide temporary ports or openings in formwork as required to facilitate cleaning and inspection.
    - b. Locate openings at bottom of forms to allow flushing water to drain.
  6. Close temporary openings with tight-fitting panels, flush with inside face of forms, and neatly fitted such that joints will not be apparent in exposed concrete surfaces.
- F. Form Ties:
1. Provide sufficient strength and quantity to prevent spreading of forms.
  2. Place ties at least 1" away from finished surface of concrete.
  3. Leave inner rods in concrete when forms are stripped.
  4. Space form ties equidistant, symmetrical, and aligned vertically and horizontally unless indicated otherwise on Drawings.
- G. Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.
- H. Construction Joints:
1. Install surfaced pouring strip where construction joints intersect on exposed surfaces to provide straight line at joints.
  2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.
  3. Appearance:
    - a. Show no overlapping of construction joints.
    - b. Construct joints to present same appearance as butted plywood joints.
    - c. Arrange joints in continuous line straight, true, and sharp.
- I. Embedded Items:
1. Make provisions for pipes, sleeves, anchors, inserts, reglets, anchor slots, nailers, waterstops, and other features.
  2. Do not embed wood or uncoated aluminum in concrete.
  3. Obtain installation and setting information for embedded items furnished under other Sections.
  4. Securely anchor embedded items in correct location and alignment prior to placing concrete.
  5. Ensure that conduits and pipes, including those made of coated aluminum, meet requirements of ACI 318 regarding size and location limitations.
- J. Openings for Items Passing through Concrete:
1. Frame openings in concrete where indicated on Drawings.
  2. Establish exact locations, sizes, and other conditions required for openings and attachment of Work specified under other Sections.
  3. Coordinate Work to avoid cutting and patching of concrete after placement.
  4. Perform cutting and repairing of concrete required as result of failure to provide required openings.

- K. Screeds:
  - 1. Set screeds and establish levels for tops of and finish on concrete slabs.
  - 2. Slope slabs to drain where required or as indicated on Drawings.
  - 3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms; remove freestanding water.
  
- L. Cleanouts and Access Panels:
  - 1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris, and waste material.
  - 2. Clean forms and surfaces against which concrete is to be placed.
  - 3. Remove chips, sawdust, and other debris.
  - 4. Thoroughly blow out forms with compressed air just before concrete is placed.

### **3.3 PATCHING AND SEALING**

- A. Concrete patching:
  - 1. BASF MasterEmaco T 1061 Rapid-setting cement-based concrete repair mortar with extended working time applied per manufacturer specifications.

### **3.4 TOLERANCES**

- A. Tolerances: Construct formwork to produce completed concrete surfaces within construction tolerances according to ACI 117.

### **3.5 FIELD QUALITY CONTROL**

- A. Inspection:
  - 1. Inspect erected formwork, shoring, and bracing to ensure that Work complies with formwork design and that supports, fastenings, wedges, ties, and items are secure.
  - 2. Notify Owner's Representative after placement of reinforcing steel in forms but prior to placing concrete.
  - 3. Schedule concrete placement to permit formwork inspection before placing concrete.

END OF SECTION

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**SECTION 03 20 00  
CONCRETE REINFORCING**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Reinforcing bars.
  - 2. Welded wire fabric.
  - 3. Reinforcement accessories.
- B. Related Requirements:
  - 1. Section 03 10 00 - Concrete Forming and Accessories: Form materials, waterstops, and accessories required to form cast-in-place concrete.
  - 2. Section 03 30 00 - Cast-in-Place Concrete: Cast-in-place or in-situ concrete for structural building frame, slabs on grade, and other concrete components associated with building.

**1.2 REFERENCE STANDARDS**

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 318 - Building Code Requirements for Structural Concrete.
  - 3. ACI SP-66 - ACI Detailing Manual.
- B. ASTM International:
  - 1. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- C. Concrete Reinforcing Steel Institute:
  - 1. CRSI 10-MSP - Manual of Standard Practice.
  - 2. CRSI 10PLACE - Placing Reinforcing Bars.

**1.3 COORDINATION**

- A. Coordinate Work of this Section with placement of formwork, formed openings, and other Work.

**1.4 SUBMITTALS**

- A. Shop Drawings:
  - 1. Indicate bar sizes, spacing's, locations, splice locations, and quantities of reinforcing steel.
  - 2. Indicate bending and cutting schedules.
  - 3. Indicate supporting and spacing devices.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Submit certified copies of mill test report of reinforcement materials analysis.
- D. Welder Certificates: Certify welders and welding procedures employed on Work, verifying AWS qualification within previous 12 months.
- E. Source Quality-Control Submittals: Indicate results of [factory tests and inspections.
- F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- G. Qualifications Statement:
  - 1. Welders: Qualify procedures and personnel according to AWS D1.1.

**1.5 QUALITY ASSURANCE**

- A. Perform Work according to ACI 301 and ACI 318.
- B. Prepare Shop Drawings according to ACI SP-66.
- C. Perform Work according to OSHA standards.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Store materials according to manufacturer instructions.
- C. Protection:
  - 1. Protect materials from moisture by storing in clean, dry location remote from construction operations areas.
  - 2. Provide additional protection according to manufacturer instructions.

**1.7 EXISTING CONDITIONS**

- A. Field Measurements:
  - 1. Verify field measurements prior to fabrication.
  - 2. Indicate field measurements on Shop Drawings.

**PART 2 PRODUCTS**

**2.1 REINFORCEMENT**

- A. Reinforcing Steel:
  - 1. Comply with ASTM A615.
  - 2. Yield Strength: 60 ksi.
  - 3. Billet Bars: Deformed.

**2.2 FABRICATION**

- A. Fabricate concrete reinforcement according to ACI 318.
- B. Form standard hooks for 180-degree bends, 90-degree bends, stirrups and tie hooks as indicated on Drawings.
- C. Form reinforcement bends with minimum diameters according to ACI 318.
- D. Fabricate column reinforcement with offset bends at reinforcement splices.
- E. Form ties and stirrups from following:
  - 1. As indicated on the Drawings.
- F. Splicing:
  - 1. If not indicated on Drawings, locate reinforcement splices at point of minimum stress.
  - 2. Obtain approval of splice locations from Owner's Representative.

**2.3 ACCESSORY MATERIALS**

- A. Tie Wire:
  - 1. Minimum 16 gage, annealed type or acceptable patented system.
- B. Chairs, Bolsters, Bar Supports, and Spacers:
  - 1. Size and Shape: To strengthen and support reinforcement during concrete placement conditions.

## 2.4 SOURCE QUALITY CONTROL

- A. Provide shop inspection and testing of completed assembly.
- B. Certificate of Compliance:
  - 1. If fabricator is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at fabricator's facility conforms to Contract Documents.
  - 2. Specified shop tests are not required for Work performed by approved fabricator.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Place, support, and secure reinforcement against displacement.
- B. Do not deviate from required position beyond specified tolerance.
- C. Do not weld crossing reinforcement bars for assembly.
- D. Accommodate placement of formed openings.
- E. Spacing:
  - 1. Space reinforcement bars with minimum clear spacing according to ACI 318.
  - 2. Where applicable, space reinforcement bars with min clear spacing according to ACI 350 as shown on the drawings.
  - 3. If bars are indicated in multiple layers, place upper bars directly above lower bars.
- F. Maintain minimum concrete cover around reinforcement according to ACI 318 as follows:
  - 1. Footings and Concrete Formed against Earth: 3".
  - 2. Concrete Exposed to Earth or Weather:
    - a. No. 6 Bars and Larger: 2".
    - b. No. 5 Bars and Smaller: 1 ½".
  - 3. Supported Slabs, Walls, and Joists:
    - a. No. 14 Bars and Larger: 1 ½".
    - b. No. 11 Bars and Smaller: ¾".
  - 4. Beams and Columns: 1 ½".
  - 5. Shell and Folded Plate Members:
    - a. No. 6 Bars and Larger: ¾".
    - b. No. 5 Bars and Smaller: ½".
- 6. Where applicable, space reinforcement bars with min clear spacing according to ACI 350 as shown on the drawings.

### 3.2 TOLERANCES

- A. Install reinforcement within following tolerances for flexural members, walls, and compression members:
  - 1. Reinforcement Depth Greater Than 8":
    - a. Depth Tolerance: ± 3/8".
    - b. Concrete Cover Tolerance: Minus 3/8".
  - 2. Reinforcement Depth Less Than or Equal to 8":
    - a. Depth Tolerance: ± 1/2".
    - b. Concrete Cover Tolerance: Minus 1/2".
  - 3. Spacing between adjacent bars and distance between layers of bars shall not vary from specified position by more than 1 bar diameter nor more than 1".

### 3.3 FIELD QUALITY CONTROL

- A. Perform field [inspection and] testing according to ACI 318.
- B. Provide unrestricted access to Work and cooperate with appointed inspection and testing firm.

- C. Reinforcement Inspection:
1. Placement Acceptance: Inspect specified and ACI 318 material requirements and specified placement tolerances.
  2. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.

**END OF SECTION**

**SECTION 03 30 00  
CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes Cast-in-Place Concrete for Following Items:
  - 1. Retaining walls.
  - 2. Concrete floors and slabs.
- B. Related Requirements:
  - 1. Section 03 10 00 - Concrete Forming and Accessories: Formwork and accessories.
  - 2. Section 03 20 00 - Concrete Reinforcing: Requirements for reinforcing steel and supports.
  - 3. Section 03 39 00 - Concrete Curing

**1.2 REFERENCE STANDARDS**

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 305R - Guide to Hot Weather Concreting.
  - 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
  - 4. ACI 308.1 - Specification for Curing Concrete.
  - 5. ACI 318 - Building Code Requirements for Structural Concrete.

**1.3 COORDINATION**

- A. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

**1.4 SUBMITTALS**

- A. Product Data: Submit data on joint devices, attachment accessories, admixtures, and finish materials.
- B. Design Data:
  - 1. Submit concrete mix design for each concrete strength.
  - 2. Submit separate mix designs if admixtures are required for following:
    - a. Hot and cold weather concrete Work.
    - b. Air entrained concrete Work.
  - 3. Identify mix ingredients and proportions, including admixtures.
  - 4. Identify chloride content of admixtures and whether or not chlorides were added during manufacture.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit installation procedures and interfacing required with adjacent Work.
- E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

**1.5 CLOSEOUT SUBMITTALS**

- A. Project Record Documents: Record actual locations of embedded utilities and components concealed from view in finished construction.

**1.6 QUALITY ASSURANCE**

- A. Perform Work according to ACI 301, ACI 318, and ACI 350.
- B. Comply with ACI 305R when pouring concrete during hot weather.

- C. Comply with ACI 306.1 when pouring concrete during cold weather.
- D. Acquire cement and aggregate from one source for Work.
- E. Maintain copy of each standard affecting Work of this Section on Site.

## 1.7 AMBIENT CONDITIONS

- A. Maintain concrete temperature after installation at minimum 50°F for minimum seven days.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Concrete:
  - 1. Cement:
    - a. Comply with ASTM C150, Type I or Type II.
    - b. Type: Portland.
    - c. Use only 1 brand of each type of cement.
  - 2. Normal Weight Aggregates:
    - a. Comply with ASTM C33.
    - b. Coarse Aggregate Maximum Size: According to ACI 318.
  - 3. Water:
    - a. Comply with ACI 318.
- B. Admixtures:
  - 1. Comply with ASTM C260. Use in accordance with manufacturer's recommendations.
  - 2. Chemical:
    - a. Comply with ASTM C494.
    - b. Type A - Water Reducing.
    - c. Type D - Water Reducing and Retarding.
    - d. Type E - Water Reducing and Accelerating.
    - e. Type F - Water Reducing, High Range.
  - 3. Fly Ash:
    - a. Comply with ASTM C618, Class C.
    - b. All fly ash shall be obtained from single source.
    - c. At contractor's option, concrete mixes may be designed to include fly ash in amount of maximum of 15% of cement by weight unless specified otherwise.
  - 4. Silica Fume: Comply with ASTM C1240.

### 2.2 CONCRETE MIX

- A. Select proportions for normal weight concrete according to ACI 301.
- B. Performance and Design Criteria:
  - 1. Compressive Strength: See General Notes
  - 2. Cement Type: ASTM C150.
  - 3. Aggregate Type: Normal weight.
  - 4. Maximum Water-Cement Ratio: 40% by weight
  - 5. Aggregate Size:
    - a. Maximum: 1-1/2", verify maximum aggregate size with pumping system; use ¾" for slabs and thin sections and areas where clear spacing between reinforcing bars is less than 3".
    - b. Minimum: No. 4.
  - 6. Air Content:
    - a. 6 to 10% by volume for 3/8" nominal maximum size of coarse aggregate.
    - b. 4 to 8% by volume for ¾" nominal maximum size of coarse aggregate.
    - c. 3 to 6% by volume for 1-1/2" nominal maximum size of coarse aggregate.
  - 7. Maximum Fly Ash Content: 15% of cementitious materials by weight.

8. Slump: 2" minimum and 5" maximum, for concrete without a high range water-reducing agent. Maximum slump with high-range, water-reducing agent shall not exceed 8".
- C. Admixtures:
  1. Include admixture types and quantities indicated in concrete mix designs only if approved by Owner's Representative.
  2. Cold Weather:
    - a. Use accelerating admixtures in cold weather.
    - b. Use of admixtures will not relax cold-weather placement requirements.
  3. Hot Weather: Use set-retarding admixtures.
  4. Do not use calcium chloride or admixtures containing calcium chloride.
  5. Add air entrainment admixture to concrete mix for Work exposed to freezing and thawing.
- D. Average Compressive Strength Reduction: Not permitted.
- E. Ready-Mixed Concrete: Mix and deliver concrete according to ASTM C94.
- F. Site-Mixed Concrete: Mix concrete according to ACI 318.

## 2.3 ACCESSORIES

- A. Bonding Agent:
  1. Approved cement-based bonding agent applied per manufacturer specifications.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify requirements for concrete cover over reinforcement.
- B. Verify that anchors, seats, plates, reinforcement, waterstops, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

### 3.2 PREPARATION

- A. Previously Placed Concrete:
  1. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
  2. Remove laitance, coatings, and unsound materials.
  3. Install waterstop where shown or specified.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels, and pack solid with non-shrink grout.
- C. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- D. Remove water from areas receiving concrete before concrete is placed.

### 3.3 INSTALLATION

- A. Placing Concrete:
  1. Place concrete according to ACI 301 and ACI 318.
  2. Notify testing laboratory and Owner's Representative minimum 24 hours prior to commencement of operations.
  3. Ensure that reinforcement, inserts, embedded parts, formed expansion and contraction joints, and are not disturbed during concrete placement.
  4. Deposit concrete at final position, preventing segregation of mix.

5. Place concrete in continuous operation for each panel or section as determined by predetermined joints.
  6. Consolidate concrete.
  7. Maintain records of concrete placement, including date, location, quantity, air temperature, and test samples taken.
  8. Place concrete continuously between predetermined construction joints.
  9. Do not interrupt successive placement and do not permit cold joints to occur.
  10. Screeding:
    - a. Screed floors level.
    - b. Surface Flatness: FF 20 maximum 3/16" in 10 feet.
- B. Concrete Finishing:
1. Provide formed concrete surfaces to be left exposed.
  2. Finish concrete floor surfaces according to ACI 318.
  3. Steel trowel surfaces indicated to be exposed, and broom finish areas to be used for walking surfaces.
  4. In areas with floor drains, maintain floor elevation at walls and pitch surfaces uniformly to drains as indicated on Drawings.
- C. Curing and Protection:
1. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
  2. Cure concrete floor surfaces as specified in Section 03 39 00 - Concrete Curing.

### 3.4 PUMPED CONCRETE

- A. Conform to ACI 304R and 304.2R recommendations and requirements.
- B. Aluminum materials shall not be used in contact with fresh concrete.
- C. Provide design mix specifically suited to pumping.
- D. Provide backup for each component of system.
- E. Provide special mix or mortar to lubricate transport line at beginning of each placement.
- F. Provide for transport line cooling when ambient temperature exceeds 85°F and heating when ambient temperature is less than 32°F.

### 3.5 FIELD QUALITY CONTROL

- A. Perform inspection and testing according to ACI 318.
- B. Provide unrestricted access to Work and cooperate with appointed testing and inspection firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- D. Concrete Inspections:
  1. Periodic Placement Inspection: Inspect for proper installation procedures.
  2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.
- E. Strength Test Samples:
  1. Sampling Procedures: Comply with ASTM C172.
  2. Cylinder Molding and Curing Procedures:
    - a. Comply with ASTM C31.
    - b. Cylinder Specimens: Standard cured.
  3. Sample concrete and make one set of four cylinders for every 150 cu. yd. or less of each class of concrete placed each day, and for every 5,000 sq. ft. of surface area for slabs and walls.

4. If volume of concrete for a class of concrete would provide less than five sets of cylinders, take samples from five randomly selected batches, or from every batch if less than five batches are used.
  5. Make one additional cylinder during cold weather concreting and field cure.
- F. Field Testing:
1. Slump Test Method: Comply with ASTM C143.
  2. Air Content Test Method: Comply with ASTM C173.
  3. Temperature Test Method: Comply with ASTM C1064.
  4. Compressive Strength Concrete:
    - a. Measure slump and temperature for each sample.
    - b. Measure air content in air-entrained concrete for each sample.
- G. Cylinder Compressive Strength Testing:
1. Test Method: Comply with ASTM C39.
  2. Test one cylinder at seven days.
  3. Test two cylinders] at 28 days.
  4. Dispose of remaining cylinders if testing is not required.
- H. Patching:
1. Allow Owner's Representative to inspect concrete surfaces immediately upon removal of forms.
  2. Honeycombing or Embedded Debris in Concrete:
    - a. Notify Owner's Representative upon discovery.
  3. Patch imperfections as directed by Owner's Representative according to ACI 301.
- I. Defective Concrete:
1. Description: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
  2. Repair or replacement of defective concrete will be determined by Owner's Representative.
  3. Do not patch, fill, touch up, repair, or replace exposed concrete except upon express direction of Owner's Representative for each individual area.

**END OF SECTION**

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**SECTION 03 39 00  
CONCRETE CURING**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes: Initial and final curing of horizontal and vertical concrete surfaces.
- B. Related Requirements:
  - 1. Section 03 30 00 - Cast-in-Place Concrete: Cast-in-place or in-situ concrete for slabs on fill or grade and other concrete components associated with construction.

**1.2 REFERENCE STANDARDS**

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 302.1 - Guide to Concrete Floor and Slab Construction.
  - 3. ACI 308.1 - Specification for Curing Concrete.
  - 4. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.
- B. ASTM International:
  - 1. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete.
  - 2. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  - 3. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
  - 4. ASTM D2103 - Standard Specification for Polyethylene Film and Sheeting.

**1.3 SUBMITTALS**

- A. Product Data: Submit manufacturer's information on curing compounds, mats, paper, and film, including compatibilities and limitations.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- D. Qualifications Statement:
  - 1. Submit qualifications for manufacturer.

**1.4 QUALITY ASSURANCE**

- A. Perform Work according to ACI 301 and ACI 318.

**1.5 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three (3) years' documented experience.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Store materials according to manufacturer instructions.
- C. Protection:
  - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
  - 2. Provide additional protection according to manufacturer instructions.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. Membrane-Curing Compound, Type A:
  - 1. Comply with ASTM C309, Type 2, Class A.
- B. Absorptive Mats, Type C:
  - 1. Description:
    - a. Material: Burlap-polyethylene (PE).
    - b. Minimum Weight: 9 oz./sq. yd.
    - c. Bonded to prevent separation during handling and placing.
- C. Water: Potable; not detrimental to concrete.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify that substrate surfaces are ready to be cured.

**3.2 APPLICATION**

- A. Horizontal Surfaces:
  - 1. Comply with ACI 308.1.
  - 2. Absorptive Mat:
    - a. Saturate burlap-PE and place burlap-side down over floor slab areas.
    - b. Lap ends and sides.
    - c. Maintain in place for seven days.
- B. Vertical Surfaces:
  - 1. Membrane-Curing Compound: Apply compound in one (1) coat.

**3.3 PROTECTION**

- A. Do not permit traffic over unprotected floor surfaces.

**3.4 ATTACHMENTS**

- A. Slabs:
  - 1. Description: Absorptive mats.
  - 2. Type: Burlap-PE.
- B. Walls:
  - 1. Description: Membrane-curing compound.
  - 2. Type: Acrylic.
  - 3. Color: Clear.

**END OF SECTION**

**SECTION 05 50 00  
METAL FABRICATIONS**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
1. Shop-fabricated metal items.
  2. Ledge and shelf angles.
  3. Structural supports for miscellaneous attachments.

**1.2 REFERENCE STANDARDS**

- A. American Welding Society:
1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
  2. AWS D1.1 - Structural Welding Code - Steel.
  3. AWS D1.6 - Structural Welding Code - Stainless Steel.
- B. ASTM International:
1. ASTM A36 - Standard Specification for Carbon Structural Steel.
  2. ASTM A53- Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  3. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  4. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  5. ASTM A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
  6. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
  7. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  8. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
  9. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
  10. ASTM A312 - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
  11. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
  12. ASTM A354 - Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners.
  13. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
  14. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
  15. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
  16. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  17. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
  18. ASTM A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
  19. ASTM A992 - Standard Specification for Structural Steel Shapes.
  20. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
  21. ASTM F436 - Standard Specification for Hardened Steel Washers.
  22. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105 ksi Yield Strength.

- C. SSPC: The Society for Protective Coatings:
  - 1. SSPC - Steel Structures Painting Manual.
  - 2. SSPC Paint 20 - Zinc-Rich Coating (Type I - Inorganic and Type II - Organic).
  - 3. SSPC SP 1 - Solvent Cleaning.
  - 4. SSPC SP 10 - Near-White Blast Cleaning.

### 1.3 SUBMITTALS

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. All field connections to be bolted construction. Shop fabricated welded connections indicated using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- B. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.
- C. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

### 1.4 QUALITY ASSURANCE

- A. Structural Performance: Fabricate and install guardrails to meet OSHA requirements to withstand a live load of at least 200 pounds applied in any direction to the top of rail.
- B. Make field measurements as required prior to fabrication and installation.
- C. Coordinate with other trades to ensure proper sequencing and fitting of construction.
- D. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordination of installation.

### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store steel materials, either plain or fabricated, above ground on platforms, pallets, skids, or other supports. Keep material free from dirt, grease, and other foreign matter and protect from corrosion.

### 1.6 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

## PART 2 PRODUCTS

### 2.1 LEDGE AND SHELF ANGLES

- A. Ledge and Shelf Angles, Channels and Plates Not Attached to Structural Framing:
  - 1. For support of metal decking.
  - 2. Finish: Hot dip galvanized, ASTM A123.

### 2.2 STRUCTURAL SUPPORTS

- A. Other Structural Supports:
  - 1. Description: Steel sections, shape and size as indicated on Drawings.
  - 2. Finish: Hot dip galvanized, ASTM A123.

### 2.3 ANCHORS

- A. Description:
  - 1. ASTM F1554; Grade 55.
  - 2. Shape: Straight.
  - 3. Furnish with nut and washer.
  - 4. Finish: Type 316 stainless steel.
- B. Epoxy Adhesive Anchors:
  - 1. Grout: As specified per the recommendations of the anchor manufacturer
  - 2. Threaded Rod: Type 316 stainless steel.

## 2.4 MATERIALS

- A. Steel:
  - 1. Structural W Shapes: ASTM A992.
  - 2. Structural Shapes: ASTM A36.
  - 3. Channels and Angles: ASTM A36.
  - 4. Steel Plate: ASTM A36.
  - 5. Hollow Structural Sections: ASTM A500, Grade B.
  - 6. Bolts: ASTM A325; Type 1.
  - 7. Nuts: ASTM A563; heavy-hex type.
  - 8. Washers: ASTM F436; Type 1.
  - 9. Welding Materials: AWS D1.1; type required for materials being welded.
- B. Stainless Steel:
  - 1. Bars and Shapes: ASTM A276; Type 304.
  - 2. Bolts, Nuts, and Washers: ASTM A354.
  - 3. Welding Materials: AWS D1.6; type required for materials being welded.

## 2.5 FABRICATION

- A. Fit and shop-assemble items in largest practical sections for delivery to Site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small, uniform radius.
- D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- F. Fabrication Tolerances:
  - 1. Squareness: 1/8" maximum difference in diagonal measurements.
  - 2. Maximum Offset between Faces: 1/16".
  - 3. Maximum Misalignment of Adjacent Members: 1/16".
  - 4. Maximum Bow: 1/8" in 48".
  - 5. Maximum Deviation from Plane: 1/16" in 48".

## 2.6 FINISHES

- A. Steel:
  - 1. Prepare surfaces to be primed according to SSPC SP 6.
  - 2. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
  - 3. Galvanizing: ASTM A123; hot-dip galvanize after fabrication.
  - 4. Galvanizing for Fasteners, Connectors, and Anchors:
    - a. Hot-Dip Galvanizing: ASTM A153.
  - 5. Bolts: Hot-dip galvanized.

6. Nuts: Hot-dip galvanized.
7. Washers: Hot-dip galvanized.
8. Touchup Primer: Zinc-rich Paint: ASTM A780

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify that field conditions are acceptable and are ready to receive Work.

**3.2 PREPARATION**

- A. Clean and strip primed steel items to bare metal where Site welding is required.
- B. Supply steel items required to be cast into concrete with setting templates to appropriate sections.

**3.3 INSTALLATION**

- A. Install items plumb and level, accurately fitted, and free from distortion or defects.
- B. Make provisions for erection stresses. Install temporary bracing to maintain alignment until permanent bracing and attachments are installed.
- C. Field-weld components indicated on Drawings.
- D. Perform field welding according to AWS D1.1.
- E. Obtain approval of Owner's Representative prior to Site cutting or making adjustments not scheduled.

**3.4 TOLERANCES**

- A. Maximum Variation from Plumb: 1/4" per story or for every 12 feet in height, whichever is greater, non-cumulative.
- B. Maximum Variation from Level: 1/16" in 3 feet and 1/4" in 10 feet.
- C. Maximum Offset from Alignment: 1/4".
- D. Maximum Out-of-Position: 1/4".

**3.5 FIELD QUALITY CONTROL**

- A. Welding: Inspect welds according to AWS D1.1.
- B. Replace damaged or improperly functioning hardware.
- C. After erection, touch up welds, abrasions, and damaged finishes with prime paint or galvanizing repair paint to match shop finishes.
- D. Touch up factory-applied finishes according to manufacturer-recommended procedures.

**3.6 ADJUSTING**

- A. Adjust operating hardware and lubricate as necessary for smooth operation.

**END OF SECTION**

**SECTION 05 52 00  
METAL RAILINGS**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
1. Steel pipe railings
  2. Handrails

**1.2 SUBMITTALS**

- A. Shop Drawings: Provide Shop Drawings showing layout, spans, fastening and joints.
- B. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

**PART 2 PRODUCTS**

**2.1 HANDRAILS AND RAILINGS**

- A. As indicated on Drawings.

**2.2 MATERIALS**

- A. Steel Railing System:
1. Pipe: ASTM A53, Grade B, Schedule 40
  2. Rails and Posts: Steel pipe; welded joints.
  3. Mounting: Base plate on concrete or structural steel
  4. Exposed Fasteners: Bolts, hot-dip galvanized
  5. Galvanizing: According to ASTM A123; hot-dip galvanized

**2.3 FABRICATION**

- A. Fit and shop-assemble items in largest practical sections for delivery to Site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small, uniform radius.
- D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

**PART 3 EXECUTION**

**3.1 INSTALLATION**

- A. Anchor railings to structure with bolts or epoxy anchors, as indicated on Drawings.
- B. Verify that field conditions are acceptable and are ready to receive Work.
- C. Install items plumb and level, accurately fitted, and free from distortion or defects.
- D. Field-weld shall be avoided unless bolted connections are impractical.
- E. Perform field welding according to AWS D1.1., if required.

- F. Obtain approval of Owner's Representative prior to Site cutting or making adjustments not scheduled.
- G. After erection, touch up welds, abrasions, and damaged finishes with zinc-rich paint or galvanizing repair paint to match shop finishes.
- H. Touch up factory-applied finishes according to manufacturer-recommended procedures.

**END OF SECTION**

**SECTION 23 1323  
FACILITY ABOVEGROUND FUEL-OIL STORAGE TANKS**

**PART 1 GENERAL**

**1.01 RELATED DOCUMENTS**

**1.02 SUMMARY**

- A. Section Includes:
  - 1. Horizontal, steel, fuel-oil ASTs.

**1.03 DEFINITIONS**

- A. AST: Aboveground storage tank.

**1.04 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, and dimensions of individual components and profiles.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
  - 3. Fuel-oil storage tank accessories.
- B. Shop Drawings:
  - 1. Include plans, elevations, sections, and ballast pads and anchors, and lifting or supporting points.
  - 2. Indicate dimensions, components, and location and size of each field connection.
- C. See drawing sheet M500 for additional vendor submittals

**1.05 INFORMATIONAL SUBMITTALS**

- A. Site Survey: Plans, drawn to scale, on which fuel-oil storage tanks are shown and coordinated with other services and utilities.
- B. Qualification Data: For qualified professional engineer.
- C. Seismic Qualification Data: For ASTs, accessories, and components, from manufacturer.
  - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
  - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
  - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Brazing certificates.
- E. Welding certificates.
- F. Field quality-control reports.
- G. Sample Warranty: For special warranty.

**1.06 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For fuel-oil equipment and accessories to include in emergency, operation, and maintenance manuals.

**1.07 QUALITY ASSURANCE**

- A. EPA Compliance: Comply with EPA and state and local authorities having jurisdiction. Include recording of fuel-oil storage tanks and monitoring of tanks.
- B. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

**1.08 WARRANTY**

- A. Special Warranty: Manufacturer agrees to repair or replace components of fuel-oil storage tanks that fail in materials or workmanship within specified warranty period.
  - 1. Storage Tanks:
    - a. Failures include, but are not limited to, the following when used for storage of fuel oil at temperatures not exceeding 150 deg F (66 deg C):
      - 1) Structural failures including cracking, breakup, and collapse.
      - 2) Corrosion failure including external and internal corrosion of steel tanks.

**PART 2 PRODUCTS****2.01 HORIZONTAL, STEEL, FUEL-OIL AST**

- A. Description: UL 142, double-wall, horizontal, steel tank; with primary- and secondary-containment walls and interstitial space.
- B. Construction: Fabricated with welded, carbon steel; suitable for operation at atmospheric pressure and for storing fuel oil with specific gravity up to 1.1 and with maintained temperature up to 150 deg F (66 deg C).
- C. Supports: 3 steel saddles, 10' on center.
- D. Steel grating platform: supported from the tank utilizing reinforcement pads.
  - 1. Galvanized steel grating, ladder and steel supports.
  - 2. Encompasses all piping, valves and instrumentation on top of the tank.
  - 3. Ladder attached to the platform with connection to the pad below, see structural drawings.
  - 4. Galvanized steel handrails along the perimeter of the tank
  - 5. Tie off equipment for ladder safety.
- E. Capacities and Characteristics:
  - 1. Capacity: Refer to drawings
  - 2. Diameter: Refer to drawings
  - 3. Length: Refer to drawings
  - 4. See sheet M500 for additional requirements

**2.02 SHOP PAINTING OF AST**

- A. Apply manufacturer's standard prime coat to exterior steel surface of AST and supports.
- B. Prepare exterior steel surface of AST and tank supports
- C. Shop Cleaning: After fabrication, blast clean according to SSPC-SP 6/NACE No. 3.
- D. After cleaning, remove dust or residue from cleaned surfaces.
- E. If surface develops rust before prime coat is applied, repeat surface preparation.
- F. Apply manufacturer's standard prime coat to shop-cleaned, dry surface same day as surface preparation.
- G. Apply manufacturer's standard two-component, epoxy finish coats.

**2.03 FUEL-OIL AST ACCESSORIES**

- A. Lifting Lugs: For handling and installation.
- B. Ladders: Carbon-steel ladder outside tank, anchored to top and side wall.

**2.04 LIQUID-LEVEL GAGE SYSTEM**

- A. Description: Calibrated liquid-level gage system with sensors and annunciator panel.
- B. Annunciator Panel: With visual and audible, high-tank-level and low-tank-level alarms; fuel indicator with registration in gallons (liters); and overfill alarm. Include gage volume range that covers fuel-oil storage capacity.
- C. Pushbutton on the control panel allowing the fill to stop.

- D. Controls: Electrical, operating on 120V ac.

## **2.05 LEAK-DETECTION AND MONITORING SYSTEM**

- A. Cable and Sensor System: Comply with UL 1238.
1. Calibrated leak-detection and monitoring system with probes and other sensors and remote alarm panel for fuel-oil storage tanks and fuel-oil piping.
  2. Include fittings and devices required for testing.
  3. Controls: Electrical, operating on 120V ac.
  4. Calibrated liquid-level gage complying with UL 1238 with probes or other sensors and remote annunciator panel.
  5. Sensors to be provided with 50' connectors/cables for integration to tank.
  6. Remote Annunciator Panel: With visual and audible, high-tank-level and low-tank-level alarms; fuel indicator with registration in gallons (liters); and overfill alarm. Include gage volume range that covers fuel-oil storage capacity.

## **2.06 SOURCE QUALITY CONTROL**

- A. Pressure test and inspect fuel-oil storage tanks, after fabrication and before shipment, according to ASME and the following:
1. Horizontal, Double-Wall Steel ASTs: UL 142, STI F921, and STI R931.
- B. Affix standards organization's code stamp.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine roughing-in for aboveground fuel-oil storage tanks to verify actual locations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 FUEL-OIL AST INSTALLATION**

- A. Install tank bases and supports.
- B. Concrete Bases: Anchor AST to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
1. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.
  2. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
  3. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  4. Install anchor bolts to elevations required for proper attachment to supported equipment.
- C. Connect piping and vent fittings.
- D. Install ground connections.
- E. Install tank leak-detection and monitoring devices.
- F. Install steel ASTs according to STI R912.
- G. Fill storage tanks with fuel oil.

### **3.03 LIQUID-LEVEL GAGE SYSTEM INSTALLATION**

- A. Install liquid-level gage system. Install panel inside building where indicated.

### **3.04 LEAK-DETECTION AND MONITORING SYSTEM INSTALLATION**

- A. Install leak-detection and monitoring system. Install alarm panel inside building where indicated.

1. Double-Wall, Fuel-Oil Storage Tanks: Install probes or use factory-installed integral probes in interstitial space.
2. Install liquid-level gage.

### **3.05 LABELING AND IDENTIFYING**

- A. Nameplates, pipe identification, and signs are specified in Section 230553 "Identification for HVAC Piping and Equipment."

### **3.06 FIELD PAINTING OF AST**

- A. Prepare and touch up damaged exterior surface of AST.
- B. Prepare exterior steel surface of AST.
- C. After cleaning, remove dust or residue from cleaned surfaces.
- D. If surfaces develop rust before prime coat is applied, repeat surface preparation.

### **3.07 FIELD QUALITY CONTROL**

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- B. Perform the following tests and inspections:
  1. Tanks: Minimum hydrostatic or compressed-air test pressures for fuel-oil storage tanks that have not been factory tested and do not bear the ASME code stamp or a listing mark acceptable to authorities having jurisdiction:
    - a. Double-Wall Tanks:
      - 1) Inner Tanks: Minimum 3 psig (20.7 kPa) and maximum 5 psig (34.5 kPa).
      - 2) Interstitial Space: Minimum 3 psig (20.7 kPa) and maximum 5 psig (34.5 kPa), or 5.3-in. Hg (18-kPa) vacuum.
    - b. Where vertical height of fill and vent pipes is such that the static head imposed on the bottom of the tank is greater than 10 psig (69 kPa), hydrostatically test the tank and fill and vent pipes to a pressure equal to the static head thus imposed.
    - c. Maintain the test pressure for one hour.
- C. ASTs will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

**END OF SECTION 231323**

**SECTION 26 0519**  
**LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Single conductor building wire
- B. Wiring connectors
- C. Electrical tape
- D. Wire pulling lubricant
- E. Cable ties

**1.02 RELATED REQUIREMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

**1.03 REFERENCE STANDARDS**

- A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire; 2013 (Reapproved 2018).
- B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft; 2011 (Reapproved 2017).
- C. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation; 2004 (Reapproved 2020).
- D. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape; 2017.
- E. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- F. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy; 2009.
- G. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- H. UL 44 - Thermoset-Insulated Wires and Cables; Current Edition, Including All Revisions.
- I. UL 83 - Thermoplastic-Insulated Wires and Cables; Current Edition, Including All Revisions.
- J. UL 486A-486B - Wire Connectors; Current Edition, Including All Revisions.
- K. UL 486C - Splicing Wire Connectors; Current Edition, Including All Revisions.
- L. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate sizes of raceways, boxes, and equipment enclosures installed under other sections with the actual conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
  - 2. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.
  - 3. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

**PART 2 PRODUCTS**

## 2.01 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

## 2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70/ICEA S-95-658.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductors for Grounding and Bonding: Also comply with Section 26 0526.
- H. Conductor Material:
  - 1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.
  - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
- I. Minimum Conductor Size:
  - 1. Branch Circuits: 12 AWG.
    - a. Exceptions:
      - 1) 20A, 120 V circuit longer than 100 ft: 10 AWG. for voltage drop.
- J. Conductor Color Coding:
  - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
  - 2. Color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

## 2.03 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
  - 1. Feeders and Branch Circuits:
    - a. Size 10 AWG and Smaller: Solid.
    - b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
  - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2.
  - 2. Aluminum Building Wire (only where specifically indicated or permitted for substitution): Type XHHW-2.

## 2.04 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

## 2.05 ACCESSORIES

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Electrical Tape:
  - 1. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil; resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F and suitable for continuous temperature environment up to 221 degrees F.
- C. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.
- D. Cable Ties: Material and tensile strength rating suitable for application.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Circuiting Requirements:
  - 1. Unless dimensioned, circuit routing indicated is diagrammatic.
  - 2. When circuit destination is indicated without specific routing, determine exact routing required.
  - 3. Arrange circuiting to minimize splices.
  - 4. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
  - 5. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Installation in Raceway:
  - 1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
  - 2. Pull all conductors and cables together into raceway at same time.
  - 3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
  - 4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.
- E. Exposed Cable Installation (only where specifically permitted):
  - 1. Route cables parallel or perpendicular to building structural members and surfaces.
  - 2. Protect cables from physical damage.
- F. Paralleled Conductors: Install conductors of the same length and terminate in the same manner.
- G. Support cables according to Section 260529 - Hangers and Supports for Electrical Systems.
- H. Install conductors with a minimum of 6-inches of slack at each outlet.
- I. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.
- J. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.
- K. Make wiring connections using specified wiring connectors.
  - 1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.

2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
  3. Do not remove conductor strands to facilitate insertion into connector.
- L. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- M. Insulate ends of spare conductors using vinyl insulating electrical tape.
- N. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- O. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

**END OF SECTION**

**SECTION 26 0529  
HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.
- B. Construction requirements for concrete bases

**PART 2 PRODUCTS**

**2.01 SUPPORT AND ATTACHMENT COMPONENTS**

- A. General Requirements:
  - 1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.
  - 2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
  - 3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
  - 4. Do not use products for applications other than as permitted by NFPA 70 and product listing.
  - 5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.
    - a. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.
  - 1. The use of zip ties is not allowed for this purpose.
- C. Outlet Box Supports: Hangers, brackets, etc. suitable for the boxes to be supported.
- D. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.
  - 1. Comply with MFMA-4.
  - 2. Channel Material:
    - a. galvanized steel.
  - 3. Minimum Channel Dimensions: 1-5/8 inch width by 13/16 inch height.
- E. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
- F. Anchors and Fasteners:
  - 1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
  - 2. Concrete: Use preset concrete inserts.
  - 3. Hollow Masonry: Use toggle bolts.
  - 4. Steel: Use beam clamps complying with MSS SP-96.
  - 5. Preset Concrete Inserts: Continuous metal channel (strut) and spot inserts specifically designed to be cast in concrete ceilings, walls, and floors.
    - a. Comply with MFMA-4.
    - b. Channel Material: Use galvanized steel.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Do not provide support from piping, ductwork, or other systems.
- D. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- E. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- F. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- G. Equipment Support and Attachment:
  - 1. Strength and support assemblies: where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
  - 2. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMTs, IMCs, and RMCs as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
  - 3. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
  - 4. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
  - 5. Use slotted-channel racks attached to substrate to support equipment surface-mounted on hollow stud walls and nonstructural building surfaces.
  - 6. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
  - 7. Unless otherwise indicated, mount floor-mounted equipment on properly sized 3 inch high concrete pad constructed in accordance with Section 03 3000 and as specified in this section.
  - 8. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
  - 9. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.
  - 10. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.
- H. Preset Concrete Inserts: Use manufacturer provided closure strips to inhibit concrete seepage during concrete pour.
- I. Secure fasteners according to manufacturer's recommended torque settings.
- J. Remove temporary supports.

**END OF SECTION**

**SECTION 26 0533.13  
CONDUIT FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Galvanized steel rigid metal conduit (RMC).
- B. Intermediate metal conduit (IMC).
- C. Liquidtight flexible metal conduit (LFMC).
- D. Rigid polyvinyl chloride (PVC) conduit.
- E. Surface Mounted Raceways
- F. Conduit fittings.
- G. Accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 0519 - Low-Voltage Electrical Power Conductors and Cables.
- B. Section 26 0529 - Hangers and Supports for Electrical Systems.
- C. Section 26 0533.16 - Boxes for Electrical Systems.

**1.03 REFERENCE STANDARDS**

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2015.
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2015.
- C. ANSI C80.6 - American National Standard for Electrical Intermediate Metal Conduit (EIMC); 2018.
- D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- E. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2013.
- F. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2017.
- G. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- H. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.
- I. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2016.
- J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- K. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
- L. UL 360 - Liquid-Tight Flexible Steel Conduit; Current Edition, Including All Revisions.
- M. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- N. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.
- O. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
- P. UL 1242 - Electrical Intermediate Metal Conduit-Steel; Current Edition, Including All Revisions.

**PART 2 PRODUCTS**

**2.01 CONDUIT APPLICATIONS**

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.

- B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
  - 1. Under Slab on Grade: Use rigid PVC conduit.
  - 2. Exterior, Direct-Buried: Use rigid PVC conduit.
  - 3. Where rigid polyvinyl (PVC) conduit is provided, transition to galvanized steel rigid metal conduit where emerging from underground.
- D. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
- E. Exposed, Exterior: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
- F. Concealed, Exterior, Not Embedded in Concrete or in Contact With Earth: Use galvanized steel rigid metal conduit or intermediate metal conduit (IMC).
- G. Connections to Vibrating Equipment:
  - 1. Dry Locations: Use flexible metal conduit.
  - 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit.
  - 3. Maximum Length: 6 feet unless otherwise indicated.
  - 4. Vibrating equipment includes, but is not limited to:
    - a. Transformers.
    - b. Motors.
    - c. Pneumatic Equipment
    - d. Electric Solenoids.
    - e. Hydraulic equipment.
- H. Fished in Existing Walls, Where Necessary: Use flexible metal conduit.

## 2.02 CONDUIT REQUIREMENTS

- A. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

## 2.03 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
  - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel.
  - 3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

## 2.04 INTERMEDIATE METAL CONDUIT (IMC)

- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
  - 1. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  - 2. Material: Use steel.

3. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted.

## **2.05 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)**

- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
  1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
  2. Material: Use steel.

## **2.06 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT**

- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
- B. Fittings:
  1. Manufacturer: Same as manufacturer of conduit to be connected.
  2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

## **2.07 SURFACE MOUNTED RACEWAYS**

- A. Provide all components, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.
- D. Surface Metal Raceways: Listed and labeled as complying with UL 5.
- E. Surface Nonmetallic Raceways: Listed and labeled as complying with UL 5A.
- F. Multioutlet Assemblies: Listed and labeled as complying with UL 111.
  1. Color: To be selected by architect prior to product order.
  2. Accessory Device Boxes: Suitable for the devices to be installed; color to match raceway.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
- D. Install intermediate metal conduit (IMC) in accordance with NECA 101.
- E. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
- F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.
- G. Conduit Routing:
  1. Unless dimensioned, conduit routing indicated is diagrammatic.
  2. When conduit destination is indicated without specific routing, determine exact routing required.
  3. Conceal all conduits unless specifically indicated to be exposed.
  4. Install raceways square to enclosures and terminate with locknuts.
  5. Conduits in the following areas may be exposed, unless otherwise indicated:
    - a. Electrical rooms.
    - b. Mechanical equipment rooms.

- c. Within joists in areas with no ceiling.
  6. Unless otherwise approved, do not route conduits exposed:
    - a. Across floors.
    - b. Across roofs.
    - c. Across top of parapet walls.
    - d. Across building exterior surfaces.
  7. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
  8. Arrange conduit to maintain adequate headroom, clearances, and access.
  9. Arrange conduit to provide no more than the equivalent of three 90 degree bends between pull points.
  10. Arrange conduit to provide no more than 150 feet between pull points.
  11. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
  12. Maintain minimum clearance of 12 inches between conduits and hot surfaces. This includes, but is not limited to:
    - a. Heaters.
    - b. Hot water piping.
    - c. Flues.
  13. arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Conduit Support:
1. Secure and support conduits in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.
  2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
  3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
  4. Support conduits within 12 inches of connected enclosure.
- I. Connections and Terminations:
1. Use approved conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
  2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
  3. Use suitable adapters where required to transition from one type of conduit to another.
  4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
  5. Terminate threaded conduits in boxes and enclosures using threaded hubs for dry locations and raintight hubs for wet locations.
  6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.
  7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.
  8. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- J. Penetrations:
1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
  2. Make penetrations perpendicular to surfaces unless otherwise indicated.
  3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.

4. Conceal bends for conduit risers emerging above ground.
  5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.
  6. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
  7. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
  8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- K. Underground Installation:
1. Provide trenching and backfilling in accordance with Section 31 2316 and Section 31 2323.
  2. Provide underground warning tape in accordance with Section 26 0553 along entire conduit length.
  3. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
    - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    - b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
- L. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
  2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
  3. Where conduits are subject to earth movement by settlement or frost.
- M. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:
1. Where conduits pass from outdoors into conditioned interior spaces.
  2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
  3. Where conduits penetrate coolers or freezers.
- N. Provide pull string in all empty conduits and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches at each end.
- O. Provide grounding and bonding in accordance with Section 26 0526.

**END OF SECTION**

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**SECTION 26 0533.16  
BOXES FOR ELECTRICAL SYSTEMS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Outlet and device boxes up to 100 cubic inches, including those used as junction and pull boxes.
- B. Underground boxes/enclosures.

**1.02 REFERENCE STANDARDS**

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- B. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- C. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- D. NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers, and Box Supports; 2013 (Reaffirmed 2020).
- E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. SCTE 77 - Specifications for Underground Enclosure Integrity; 2017.
- G. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.

**PART 2 PRODUCTS**

**2.01 BOXES**

- A. General Requirements:
  - 1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
  - 2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
  - 3. Provide products listed, classified, and labeled as suitable for the purpose intended.
  - 4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
  - 5. Provide grounding terminals within boxes where equipment grounding conductors terminate.
- B. Outlet and Device Boxes Up to 100 cubic inches, Including Those Used as Junction and Pull Boxes:
  - 1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
  - 2. Use cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
  - 3. Use suitable concrete type boxes where flush-mounted in concrete.
  - 4. Use suitable masonry type boxes where flush-mounted in masonry walls.
  - 5. Use raised covers suitable for the type of wall construction and device configuration where required.
  - 6. Use shallow boxes where required by the type of wall construction.
  - 7. Do not use "through-wall" boxes designed for access from both sides of wall.
  - 8. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
  - 9. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.

10. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
  11. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.
  12. Minimum Box Size, Unless Otherwise Indicated:
    - a. 4 inch square by 1-1/2 inch deep (100 by 38 mm) trade size
  13. Wall Plates: Comply with Section 26 2726.
- C. Underground Boxes/Enclosures:
1. Description: In-ground, open bottom boxes furnished with flush, non-skid covers with legend indicating type of service and stainless steel tamper resistant cover bolts.
  2. Size: 12 inches by 24 inches unless otherwise indicated.
  3. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 12 inches.
  4. Provide logo on cover to indicate type of service.
  5. Cover Finish: Nonskid finish shall have minimum coefficient of friction of .50.
  6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
  7. Applications:
    - a. Sidewalks and Landscaped Areas Subject Only to Occasional Nondeliberate Vehicular Traffic: Use polymer concrete enclosures, with minimum SCTE 77 Tier 8 load rating.
    - b. Do not use polymer concrete enclosures in areas subject to deliberate vehicular traffic.
  8. Polymer Concrete Underground Boxes/Enclosures: Comply with SCTE 77.
    - a. Manufacturers:
      - 1) Hubbell Incorporated; Quazite Products
      - 2) MacLean Highline
      - 3) Oldcastle Precast, Inc
      - 4) Armorcast Products Company.
      - 5) Carson Industries LLC.
      - 6) Or engineer pre-approved equivalent.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide separate boxes for emergency power and normal power systems.
- E. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- F. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- G. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- H. Box Supports:
  1. Secure and support boxes in accordance with NFPA 70 and Section 26 0529 using suitable supports and methods approved by the authority having jurisdiction.

2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
  3. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
  4. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
  5. Do not support boxes by conduit alone.
- I. Install boxes plumb and level.
- J. Flush-Mounted Boxes:
1. Install boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that front edge of box or associated raised cover is not set back from finished surface more than 1/4 inch or does not project beyond finished surface.
  2. Install boxes in combustible materials such as wood so that front edge of box or associated raised cover is flush with finished surface.
  3. Repair rough openings around boxes in noncombustible materials such as concrete, tile, gypsum, plaster, etc. so that there are no gaps or open spaces greater than 1/8 inch at the edge of the box.
- K. Install boxes as required to preserve insulation integrity.
- L. Underground Boxes/Enclosures:
1. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
  2. Unless otherwise indicated, install enclosure on gravel base, minimum 6 inches deep. Grade base from 1/2-inch sieve to No4 sieve and compact to same density as adjacent undisturbed earth.
  3. Flush-mount enclosures located in concrete or paved areas.
  4. Mount enclosures located in landscaped areas with top at 1 inch above finished grade.
  5. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.
  6. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.
- M. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 8400.
- N. Close unused box openings.
- O. Install blank wall plates on junction boxes and on outlet boxes with no devices or equipment installed or designated for future use.
- P. Provide grounding and bonding in accordance with Section 26 0526.
- Q. Identify boxes in accordance with Section 26 0553.

**END OF SECTION**

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**SECTION 26 2726  
WIRING DEVICES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Receptacles.
- B. Wall plates.

**1.02 REFERENCE STANDARDS**

- A. FS W-C-596 - Connector, Electrical, Power, General Specification for; 2014h (Validated 2022).
- B. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- C. NECA 130 - Standard for Installing and Maintaining Wiring Devices; 2016.
- D. NEMA WD 1 - General Color Requirements for Wiring Devices; 1999 (Reaffirmed 2015).
- E. NEMA WD 6 - Wiring Devices - Dimensional Specifications; 2016.
- F. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- G. UL 498 - Attachment Plugs and Receptacles; Current Edition, Including All Revisions.
- H. UL 514D - Cover Plates for Flush-Mounted Wiring Devices; Current Edition, Including All Revisions.
- I. UL 943 - Ground-Fault Circuit-Interrupters; Current Edition, Including All Revisions.

**1.03 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the placement of outlet boxes with millwork, furniture, equipment, etc. installed under other sections or by others.
  - 2. Coordinate the placement of outlet boxes for wall switches with actual installed door swings.
  - 3. Coordinate the installation and preparation of uneven surfaces, such as split face block, to provide suitable surface for installation of wiring devices.
  - 4. Notify Architect of any conflicts or deviations from Contract Documents to obtain direction prior to proceeding with work.

**1.04 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.
  - 1. Wall Dimmers: Include derating information for ganged multiple devices.

**1.05 QUALITY ASSURANCE**

- A. Comply with requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.

**PART 2 PRODUCTS**

**2.01 WIRING DEVICE APPLICATIONS**

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. Provide weather resistant GFCI receptacles with specified weatherproof in use covers for receptacles installed outdoors or in damp or wet locations.
- C. Provide tamper resistant receptacles.
- D. Provide GFCI protection for receptacles installed within 6 feet of sinks.

- E. Provide GFCI protection for receptacles installed in commercial kitchens.
- F. Provide GFCI protection for receptacles serving electric drinking fountains.
- G. Unless noted otherwise, do not use combination switch/receptacle devices.

## 2.02 WIRING DEVICE FINISHES

- A. Provide wiring device finishes as described below unless otherwise indicated.
- B. Wiring Devices, Unless Otherwise Indicated: Gray with stainless steel wall plate, Verification during submittal process.
- C. Wiring Devices Connected to Emergency Power: Red with red nylon wall plate factory marked "Emergency".

## 2.03 MANUFACTURERS:

- A. Hubbell Incorporated: [www.hubbell.com/#sle](http://www.hubbell.com/#sle).
- B. Leviton Manufacturing Company, Inc: [www.leviton.com/#sle](http://www.leviton.com/#sle).
- C. Pass & Seymour, a brand of Legrand North America, Inc: [www.legrand.us/#sle](http://www.legrand.us/#sle).
- D. Eaton(Arrow Hart).
- E. Or engineer pre-approved equivalent.

## 2.04 PRODUCT GRADE:

- A. Receptacles: Unless indicated otherwise, Industrial specification grade.
- B. Switches: Unless indicated otherwise, Industrial specification grade.

## 2.05 RECEPTACLES

- A. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596; types as indicated on the drawings.
  - 1. Wiring Provisions: Terminal screws for side wiring or screw actuated binding clamp for back wiring with separate ground terminal screw.
  - 2. NEMA configurations specified are according to NEMA WD 6.
- B. Convenience Receptacles:
- C. GFCI Receptacles:
  - 1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
    - a. Provide test and reset buttons of same color as device.
  - 2. Standard GFCI Receptacles: duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.
  - 3. Weather Resistant GFCI Receptacles: duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as weather resistant type complying with UL 498 Supplement SE suitable for installation in damp or wet locations.

## 2.06 WALL PLATES

- A. Wall Plates: Comply with UL 514D.
  - 1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
  - 2. Size: Standard.
  - 3. Screws: Metal with slotted heads finished to match wall plate finish.
- B. Stainless Steel Wall Plates: Brushed satin finish, Type 302 stainless steel unless indicated otherwise by architect during submittal process.
- C. Galvanized Steel Wall Plates: Rounded corners and edges, with corrosion resistant screws.

- D. Weatherproof Covers for Wet Locations: Gasketed, cast aluminum, with hinged lockable cover and corrosion-resistant screws; listed as suitable for use in wet locations while in use with attachment plugs connected and identified as extra-duty type.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130.
- B. Coordinate locations of outlet boxes provided under Section 26 0533.16 as required for installation of wiring devices provided under this section. Unless otherwise indicated, measurements are to center line of device.
- C. Install wiring devices in accordance with manufacturer's instructions.
- D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- E. Conductors:
  - 1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
  - 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
  - 3. Where required, connect wiring devices using pigtails not less than 6 inches long. Do not connect more than one conductor to wiring device terminals.
  - 4. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
- F. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
- G. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- H. Install wiring devices plumb and level with mounting yoke held rigidly in place.
- I. Install wall switches with OFF position down.
- J. Install vertically mounted receptacles with grounding pole on top and horizontally mounted receptacles with grounding pole on left.
- K. Install wall plates to fit completely flush to wall with no gaps and rough opening completely covered without strain on wall plate. Repair or reinstall improperly installed outlet boxes or improperly sized rough openings. Do not use oversized wall plates in lieu of meeting this requirement.
- L. Install blank wall plates on junction boxes and on outlet boxes with no wiring devices installed or designated for future use.

#### **3.02 FIELD QUALITY CONTROL**

- A. Inspect each wiring device for damage and defects.
- B. Test each receptacle to verify operation and proper polarity.
  - 1. Line voltage: Acceptable range is 105 to 132 V.
  - 2. Ground Impedance: Values of up to 2 ohms are acceptable.
  - 3. Voltage Drop: Under 15A load, a value of 6 percent or higher is unacceptable.
- C. Test each GFCI receptacle for proper tripping operation according to manufacturer's instructions.
  - 1. Test for tripping values specified in UL 1436 and UL 943
- D. Correct wiring deficiencies and replace damaged or defective wiring devices.

- E. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete

**3.03 ADJUSTING**

- A. Adjust devices and wall plates to be flush and level.

**3.04 CLEANING**

- A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

**END OF SECTION**

**SECTION 26 2816.16  
ENCLOSED SWITCHES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Enclosed safety switches.

**1.02 RELATED REQUIREMENTS**

- A. Section 26 0529 - Hangers and Supports for Electrical Systems.

**1.03 REFERENCE STANDARDS**

- A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- B. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.
- C. NEMA BS 31047 - Heavy Duty Enclosed and Dead-Front Switches (600 Volts Maximum); 2013 (Reaffirmed 2023).
- D. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.
- E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- F. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations; Current Edition, Including All Revisions.
- G. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations; Current Edition, Including All Revisions.
- H. UL 98 - Enclosed and Dead-Front Switches; Current Edition, Including All Revisions.
- I. UL 869A - Reference Standard for Service Equipment; Current Edition, Including All Revisions.

**1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
  - 1. Coordinate the work with other trades. Avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and within working clearances for electrical equipment required by NFPA 70.
  - 2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.
  - 3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.
  - 4. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

**1.05 SUBMITTALS**

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for enclosed switches and other installed components and accessories.
- C. Shop Drawings: Indicate outline and support point dimensions, voltage and current ratings, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.
  - 1. Include dimensioned plan and elevation views of enclosed switches and adjacent equipment with all required clearances indicated.
  - 2. Include wiring diagrams showing all factory and field connections.
- D. Closeout Submittals:
  - 1. Field Quality Control Test Reports.

2. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.
3. Project Record Documents: Record actual locations of enclosed switches.
4. Maintenance Data: Include information on replacement parts and recommended maintenance procedures and intervals.
5. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - a. See Section 01 6000 - Product Requirements, for additional provisions.

## 1.06 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. ABB/GE: [www.geindustrial.com/#sle](http://www.geindustrial.com/#sle).
- B. Eaton Corporation: [www.eaton.com/#sle](http://www.eaton.com/#sle).
- C. Schneider Electric; Square D Products: [www.schneider-electric.us/#sle](http://www.schneider-electric.us/#sle).
- D. Siemens Industry, Inc: [www.usa.siemens.com/#sle](http://www.usa.siemens.com/#sle).
- E. Or engineer pre-approved equivalent.

### 2.02 ENCLOSED SAFETY SWITCHES

- A. Description: Quick-make, quick-break enclosed safety switches listed and labeled as complying with UL 98; heavy duty; ratings, configurations, and features as indicated on the drawings.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:
  1. Altitude: Less than 6,600 feet.
  2. Ambient Temperature: Between -22 degrees F and 104 degrees F.
- D. Horsepower Rating: Suitable for connected load.
- E. Voltage Rating: Suitable for circuit voltage.
- F. Short Circuit Current Rating:
  1. Provide enclosed safety switches, when protected by the fuses or supply side overcurrent protective devices to be installed, with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
  2. Minimum Ratings:
    - a. Switches Protected by Class H Fuses: 10,000 rms symmetrical amperes.
    - b. Heavy Duty Single Throw Switches Protected by Class R, Class J, Class L, or Class T Fuses: 200,000 rms symmetrical amperes.
- G. Enclosed Safety Switches Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.
- H. Provide with switch blade contact position that is visible when the cover is open.
- I. Fuse Clips for Fusible Switches: As required to accept fuses indicated.
- J. Conductor Terminations: Suitable for use with the conductors to be installed.
- K. Provide insulated, groundable fully rated solid neutral assembly where a neutral connection is required, with a suitable lug for terminating each neutral conductor.
- L. Provide solidly bonded equipment ground bus in each enclosed safety switch, with a suitable lug for terminating each equipment grounding conductor.

- M. Enclosures: Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E.
  - 1. Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:
    - a. Indoor Clean, Dry Locations: Type 1.
    - b. Outdoor Locations: Type 3R.
    - c. Kitchens: Type 4X.
  - 2. Finish for Painted Steel Enclosures: Manufacturer's standard, factory applied grey unless otherwise indicated.
- N. Provide safety interlock to prevent opening the cover with the switch in the ON position with capability of overriding interlock for testing purposes.
- O. Heavy Duty Switches:
  - 1. Comply with NEMA BS 31047.
  - 2. Conductor Terminations:
    - a. Provide mechanical lugs unless otherwise indicated.
    - b. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
  - 3. Provide externally operable handle with means for locking in the OFF position, capable of accepting three padlocks.
- P. Provide the following features and accessories where indicated or where required to complete installation:
  - 1. Auxiliary Switch: SPDT switch suitable for connection to system indicated, with auxiliary contact operation before switch blades open and after switch blades close.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that field measurements are as indicated.
- B. Verify that the ratings of the enclosed switches are consistent with the indicated requirements.
- C. Verify that mounting surfaces are ready to receive enclosed safety switches.
- D. Verify that conditions are satisfactory for installation prior to starting work.

#### **3.02 INSTALLATION**

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide required support and attachment in accordance with Section 26 0529.
- E. Install enclosed switches plumb.
- F. Except where indicated to be mounted adjacent to the equipment they supply, mount enclosed switches such that the highest position of the operating handle does not exceed 79 inches above the floor or working platform.
- G. Provide grounding and bonding in accordance with Section 26 0526.
- H. Provide fuses complying with Section 26 2813 for fusible switches as indicated or as required by equipment manufacturer's recommendations.
- I. Identify enclosed switches in accordance with Section 26 0553.

#### **3.03 FIELD QUALITY CONTROL**

- A. See Section 01 4000 - Quality Requirements, for additional requirements.
- B. Inspect and test in accordance with NETA ATS, except Section 4.

- C. Perform inspections and tests listed in NETA ATS, Section 7.5.1.1.
- D. Correct deficiencies and replace damaged or defective enclosed safety switches or associated components.

**3.04 ADJUSTING**

- A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

**3.05 CLEANING**

- A. Clean dirt and debris from switch enclosures and components according to manufacturer's instructions.
- B. Repair scratched or marred exterior surfaces to match original factory finish.

**END OF SECTION**

**SECTION 40 0513  
COMMON WORK RESULTS FOR PROCESS PIPING**

**PART 1 GENERAL**

**1.01 SECTIONS INCLUDED**

- A. Piping and Fittings.
- B. Valves
- C. Specialties
- D. Accessories.

**1.02 REFERENCES**

- A. The publications listed below form a part of this Specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Contractor shall comply with all such regulations and standards and shall protect and indemnify the Owner and Design Professional against any claim or liability arising from, or based upon, non-conformance with the regulations during normal service conditions.
- C. Air Conditioning, Heating, and Refrigeration Institute (AHRI)
  - 1. AHRI 750 – Standard for Thermostatic Refrigerant Expansion Valves.
  - 2. AHRI 760 – Standard for Performance Rating of Solenoid Valves for Use with Volatile Refrigerants.
- D. American Petroleum Institute (API):
  - 1. API Specification 5L – Specification for Line Pipe.
  - 2. API 598 – Valve Inspection and Testing.
  - 3. API 609 – Butterfly Valves: Double Flanged, Lug- and Wafer-Type.
- E. ASTM International (ASTM):
  - 1. ASTM A47/A47M – Standard Specification for Ferritic Malleable Iron Castings.
  - 2. ASTM A48/A48M – Standard Specification for Gray Iron Castings.
  - 3. ASTM A53/A53M – Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded, and Seamless.
  - 4. ASTM A105/A105M – Standard Specification for Carbon Steel Forgings for Piping Applications.
  - 5. ASTM A106/A106M – Standard Specification for Seamless Carbon Steel Pipe For High-Temperature Service.
  - 6. ASTM A126 – Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
  - 7. ASTM A135/A135M – Standard Specification for Electric-Resistance Welded Steel Pipe.
  - 8. ASTM A139/A139M – Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over).
  - 9. ASTM A182/A182M – Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service.
  - 10. ASTM A193/A193M – Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
  - 11. ASTM A194/A194M – Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature Service, or Both.
  - 12. ASTM A197/A197M – Standard Specification for Cupola Malleable Iron.
  - 13. ASTM A216/A216M – Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, For High-Temperature Service.
  - 14. ASTM A234/A234M – Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate- and High-Temperature Service.

15. ASTM A240/A240M – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and General Appliance.
  16. ASTM A269 – Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
  17. ASTM A276/A276M – Standard Specification for Stainless Steel Bars and Shapes.
  18. ASTM A395/A395M – Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for use at Elevated Temperatures.
  19. ASTM A516/A516M – Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate- and Low-Temperature Service.
  20. ASTM A536 – Standard Specification for Ductile Iron Castings.
  21. ASTM A638/A638M – Standard Specification for Precipitation Hardening Iron Base Superalloy Bars, Forgings, and Forging Stock for High Temperature Service.
  22. ASTM A666 – Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip Plate, and Flat Bar.
  23. ASTM B32 – Standard Specifications for Solder Metal.
  24. ASTM B61 – Standard Specification for Steam or Valve Bronze Castings.
  25. ASTM B62 – Standard Specification for Composition Bronze or Ounce Metal Castings.
  26. ASTM B88/B88M – Standard Specification for Seamless Copper Water Tube.
  27. ASTM B209/B209M – Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.
  28. ASTM B283/B283M – Standard Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed).
  29. ASTM B813 – Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube.
  30. ASTM C177 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of Guarded-Hot-Plate Apparatus.
  31. ASTM D781 – Method of Test for Puncture and Stiffness of Paperboard, Corrugated, and Solid Fiberboard.
  32. ASTM E84 – Test Method for Surface Burning Characteristics of Building Materials.
  33. ASTM E96/E96M – Standard Test Methods for Water Vapor Transmission of Materials.
  34. ASTM E162 – Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source.
- F. American Society of Mechanical Engineers (ASME):
1. ASME Boiler and Pressure Vessel Code.
  2. ASME B16.3 – Malleable Iron Threaded Fittings.
  3. ASME B16.4 – Gray Iron Threaded Fittings.
  4. ASME B16.5 – Pipe Flanges and Flanged Fittings: NPS ½ through 24.
  5. ASME B16.9 – Factory-Made Wrought Butt Welding Fittings.
  6. ASME B16.10 – Face-to-Face and End Dimensions of Valves.
  7. ASME B16.11 – Forged Fittings, Socket-Welding and Threaded.
  8. ASME B16.18 – Cast Copper Alloy Solder Joint Pressure Fittings.
  9. ASME B16.22 – Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.
  10. ASME B16.25 – Buttwelding Ends.
  11. ASME B16.26 – Cast Copper Alloy Fittings for Flared Copper Tubes.
  12. ASME B16.34 – Valves – Flanged, Threaded, and Welding End.
  13. ASME B16.47 – Large Diameter Flanges.
  14. ASME B16.50 - Wrought Copper and Copper Alloy Braze-Joint Pressure Fittings
  15. ASME B31.1 – Code for Pressure Piping – Power Piping.
- G. American Water Works Association (AWWA):
1. AWWA C504 – Rubber-Seated Butterfly Valves, 3 In. Through 72 In.
- H. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS):

1. MSS SP-45 – Bypass and Drain Connections.
  2. MSS SP-58 – Pipe Hangers and Supports-Materials, Design, Manufacture, Selection, Application, and Installation.
  3. MSS SP-69 – Pipe Hangers and Supports-Selection and Application.
  4. MSS SP-80 – Bronze, Gate, Globe, Angle, and Check Valves.
  5. MSS SP-89 – Pipe Hangers and Supports-Fabrication and Installation Practices.
  6. MSS SP-90 – Guidelines on Terminology for Pipe Hangers and Supports.
  7. MSS SP-97 – Integrally Reinforced Forged Branch Outlet Fittings – Socket Welding, Threaded, and Buttwelding Ends.
  8. MSS SP 110 – Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
  9. MSS SP-127 – Bracing for Piping Systems Seismic – Wind – Dynamic Design, Selection, and Application.
- I. National Fire Protection Association (NFPA):
1. NFPA 30 – Flammable and Combustible Liquids Code.
  2. NFPA 37 – Installation and Use of Stationary Combustion Engines and Gas Turbines.
  3. NFPA 255 – Standard Method of Test of Surface Burning Characteristics of Building Materials.
- J. American Welding Society (AWS):
1. AWS A5.8 – Specification for Filler Metals For Brazing and Braze Welding.
  2. AWS B2.1 – Specification for Welding Procedure and Performance Qualification.
  3. AWS D1.1 – Structural Welding Code – Steel.
- K. Pipe Fabrication Institute (PFI):
1. PFI ES-24 – Pipe Bending Methods, Tolerances, Process, and Material Requirements.

### 1.03 SUBMITTALS

- A. Shop Drawings: Indicate layout of piping systems, including equipment, critical dimensions, and sizes. Provide material specification number (ASTM, API, etc.), grade, class, or type, pressure and temperature rating, and schedule number for piping and fittings for each system.
- B. Piping test procedures and piping test certifications.
- C. Welder's certificate: In compliance with AWS D1.1, and ASME B31.1.
- D. Source quality control test reports.
- E. Valves – Gate, globe, check, plug, butterfly, or ball:
1. Catalog cuts showing design and construction.
  2. Pressure and temperature ratings.
  3. Materials of construction.
  4. Accessories.
  5. Manufacturer.
- F. Strainers:
1. Catalog cuts showing design and construction.
  2. Pressure and temperature ratings.
  3. Materials of construction.
  4. Strainer basket or liner mesh.
  5. Pressure loss and flow rate data.
  6. Manufacturer.

### 1.04 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data: Submit operations and maintenance manual for all piping materials, valves, equipment, and piping specialties within this section.
- B. Installation and storage information.

C. Field quality test reports and Record Drawings.

#### 1.05 QUALITY ASSURANCE

- A. Entire installation shall comply with ASME Power Piping Code, ASME B31.1 and appendices, unless otherwise indicated. All pipe supports shall comply with ANSI/MSS SP-58 and MSS SP-69.
- B. Mechanical, electrical, and associated systems shall be safe, reliable, efficient, durable, easily and safely operable and maintainable, easily and safely accessible, and in compliance with applicable codes as specified.
- C. Systems shall be comprised of high-quality industrial-class products of manufacturers that are experienced specialists in the required product lines. Manufacturer shall specialize in manufacturing products specified in this section with minimum five years' experience.
- D. All elements of construction shall be performed by workmen skilled in the particular craft involved and regularly employed in that particular craft. Construction firms and personnel shall be experienced and qualified specialists in industrial gas generator plant and power plant construction including mechanical, electrical and structural auxiliaries.
- E. All work shall be performed in a neat, workmanlike manner in keeping with the highest standards of the craft. Coordinate with Owner's Representative about loud work, time, and protection of objects. All work shall be pre-inspected by Contractor prior to inspection final checkout.
- F. Multiple units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.
- G. Shop-fabricate piping systems to minimize field fabrication. Owner's Main Power Plant does not have space for on-site fabrication.
- H. Mechanical systems welding: Before any welding is performed, Contractor shall submit a certificate certifying that welders comply with the following requirements:
  - 1. Perform Work in accordance with ASME B31.1 Code for installation of piping systems, ASME Section IX for welding materials and procedures, and applicable state of Iowa regulations.
  - 2. Certify that each welder has passed American Welding Society (AWS) qualification tests for the welding processes involved and that certification is current.
  - 3. Welders' qualifications shall be in compliance with ASME B31.1 and AWS D1.1.
  - 4. Welders and welding procedures: AWS D.1 qualified within previous 12 months for employed weld types.
  - 5. Each welder shall utilize a stamp to identify all work performed by the welder. The Owner reserves the right to reject any personnel found unqualified in the performance of work for which they are employed.
  - 6. Examining welder: Examine each welder at job site, in the presence of the Owner's Representative, to determine the ability of the welder to meet the qualifications required. Test welders for piping for all positions, including welds with the axis horizontal (not rolled) and with the axis vertical. Each welder shall be allowed to weld only in the position in which he has qualified and shall be required to identify his welds with his specific code marking signifying his name and number assigned.
  - 7. Examination results: Provide the Owner's Representative with a list of names and corresponding code markings. Retest welders who fail to meet the prescribed welding qualifications. Disqualify welders who fail the second test for work on the Project.
- I. Factory-fabricated fitting covers manufactured in accordance with ASTM C450.
- J. Test materials in accordance with the requirements of NFPA 255.
- K. Manufacturer shall stamp all valves with pressure and temperature rating that meets or exceeds specified hydrostatic shell and closure test pressures.

**1.06 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. All piping shall be stored and kept free of foreign material and shall be internally and externally cleaned of all oil, dirt, rust, and foreign material. Deliver and store valves and pipe hangers in sealed shipping containers with labeling in place. Storage must be in dry, protected location.
- B. Protection of equipment and materials:
  - 1. Equipment and material placed on the job site shall remain in the custody of the Contractor until acceptance, whether or not Owner has reimbursed Contractor for equipment and material. Contractor shall be solely responsible for the protection of such equipment and material against any damage.
  - 2. Accept materials on site in original factory packaging, labeled with manufacturer's identification. Protect from weather and construction traffic, dirt, water chemical, and damage by storing in original packaging.
  - 3. Place damaged equipment in first class, new operating condition or replace same as determined and directed by the Owner's Representative. Such repair or replacement shall be at no additional cost to Owner.
  - 4. Protect interiors of new equipment and piping systems against entry of foreign matter. Clean both inside and outside before painting or placing equipment in operation.
  - 5. Existing equipment and piping being worked on by Contractor shall be under the custody and responsibility of the Contractor and shall be protected as required for new work.
  - 6. Do not telescope small pipe inside larger pipe for shipment or storage.
  - 7. Handle piping by use of slings, hoists, skids, or other approved means. Dropping or rolling of pipe and fittings is not permitted.
- C. Cleanliness of piping and equipment systems:
  - 1. Exercise care in storage and handling of equipment and piping material to be incorporated in Work. Remove debris arising from cutting, threading, and welding of piping.
  - 2. Piping systems shall be flushed, blown, or pigged, as necessary, to deliver clean systems.
  - 3. Clean interior of all tanks prior to delivery for beneficial use by Owner.
  - 4. Contractor shall be fully responsible for all costs, damage, and delay arising from failure to provide clean systems.
- D. Store materials in clean and dry environment; pipe covering jackets shall be clean and unmarred. Place adhesives in original containers. Maintain ambient temperatures and conditions as required by printed instructions of manufacturers of adhesives, mastics, and finishing cements.
- E. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

**1.07 DEFINITIONS**

- A. Large bore piping: Piping detail routed on Drawings is generally 2 ½" and larger in diameter, unless indicated otherwise.
- B. Small bore piping: Piping not routed on Drawings is generally 2" and smaller in diameter. Contractor shall field-route small bore piping based upon requirements of Piping and Instrumentation Diagrams (PIDs), unless indicated otherwise.
- C. Contractor shall provide pipe supports, anchors, flexible couplings, and expansion joints for all piping systems. The Drawings indicate pipe supports, anchors, flexible couplings, and expansion joints for piping 2 ½" and larger and for some pipes that are 2" and smaller. See Section 40 05 29 – Supports and Anchors for additional requirements.
- D. Density: Pounds per cubic foot (lb/ft<sup>3</sup>).
- E. Thermal conductance: Heat flow rate through materials.
  - 1. Flat surface: Btu per hour per square foot (BTU/h- ft<sup>2</sup>).
  - 2. Pipe or Cylinder: BTU per hour per linear foot (BTU/h- ft).

- F. Thermal Conductivity (k): BTU per inch thickness, per hour, per square foot, per degree F temperature difference (Btu-in/hr-ft<sup>2</sup>-°F).
- G. Vapor Retarder (Vapor Barrier): A material which retards the transmission (migration) of water vapor. Performance of the vapor retarder is rated in terms of permeance (perms). For the purpose of this specification, vapor retarders shall have a maximum published permeance of 0.1 perms and vapor barriers shall have a maximum published permeance of 0.001 perms.

## **PART 2 PRODUCTS**

### **2.01 PIPING – GENERAL**

- A. Provide piping, fittings, flanges, hardware, and accessories for each system as specified herein. If wall thickness is not available, use the next heavier wall.
- B. Contractor shall be responsible for completing material take-offs, tools and equipment, materials and methods, fabrication and assembly, field safety program, and manuals and drawings.
- C. Contractor shall be responsible for field verifying all dimensions, layouts, existing conditions, interface with existing systems, equipment and utilities, and other information necessary for the installation of new piping, fittings, valves, specialties, and appurtenances associated with each piping system.
- D. The Contractor shall lay out the piping system in careful coordination with the design drawings, determining the proper locations and elevations of all components and using the minimum number of bends to produce a satisfactory functioning system. The Contractor shall follow the general layout of the design drawings in all cases except where other work or structures may interfere.
- E. Piping and fitting materials shall be new and shall be furnished and installed in full lengths. Multiple short lengths of pipe with couplings (to assemble long runs) are not acceptable.
- F. If not shown on Drawings, Contractor shall give priority first to equipment, second to process piping and instrumentation, third to HVAC, fourth to fire protection piping and sprinklers, fifth to lighting fixtures, sixth to electrical conduit and cable tray, seventh to service and instrument air, and eight to vents and drains, as applicable.
- G. Drips, drains, vents, blowdown, water sampling, and chemical treatment are designed and materials and equipment are applied in accordance with the maximum pressure and temperature of the system with which they are associated.
- H. Provide piping, fittings, valves, and appurtenances for drains, vents, instrumentation, sample line, etc. not shown on Drawings, but required for complete, safe, and reliable operation of equipment and systems furnished and installed under this contract. Such piping, fittings, valves, and appurtenances shall be rated in accordance with the piping system to which they are connected
- I. Instrumentation and control piping shall be provided for the service and pressure characteristics of the systems to which they are connected. Requirements of piping specifications shall apply from main piping line through first isolation (root) valve on instrumentation taps, instrument air connections, test ports, and other piping taps.
- J. Backing rings shall not be allowed for welded piping.

### **2.02 STRAINERS: Y-TYPE**

- A. Provide as shown on fuel oil and gas fuel supply, condensate, and compressed-air piping systems.
- B. Type: Open-end removable cylindrical screen. Threaded blow-off connection.
- C. Construction:
  1. 2" and below: Threaded carbon steel body rated for 150 psig working pressure.

2. 2 ½" and above: ASME Class 150 flanged carbon steel body rated for 150 psig working pressure.
- D. Screen: Stainless steel, free area not less than 2 ½ times flow area of pipe. For strainers 2" pipe size and below, diameter of openings shall be 0.033" or less on steam and gas fuel supply service, 0.05" or less on water service, 0.01" or less on compressed air service. For strainers 4" pipe size and greater, diameter of openings shall be 0.05" on steam or gas fuel supply service, 0.125" on water service. Provide 80 mesh stainless steel screen liner on all strainers installed upstream of meters or control valves.
- E. Accessories: Ball valve and quick-couple hose connection on all blowoff connections, unless shown otherwise on Drawings.
- F. Manufacturers: Armstrong, Spirax Sarco, Mueller, or equal.

### 2.03 FLEXIBLE CONNECTORS

- A. Provide flexible connectors as shown on Drawings for gas fuel supply and return.
- B. Rated for pressure class of piping system and full vacuum.
- C. Construction: Flexible corrugated stainless steel hose wrapped with wire braid sheath. Provide threaded ends with union connectors for piping 2" and below and flanged connections for piping 2 ½" and above.
- D. Manufacturer: Hyspan, American Boa or equal.

## PART 3 EXECUTION

### 3.01 EQUIPMENT AND MATERIALS IDENTIFICATION

- A. Provide piping and equipment labels on all systems to identify system (i.e. gas boiler exhaust, gas fuel supply, fuel oil supply and return, steam, boiler feedwater, etc.), directional flow arrows, and non-asbestos-based insulation.
- B. Install identifying devices after completion of coverings and painting.
- C. Labels: Factory-fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering.
- D. Color and lettering: Conform to ASME A13.1.
- E. Tape: Flexible vinyl tape with pressure-sensitive adhesive backing and printed markings.
- F. Locate labels near branch connections, wall, or floor penetrations, at each accessible level of plant, at manways, near valves and control devices (control valves), and near equipment.
- G. Maximum spacing: 30 feet due to congested nature of Power Plant, unless indicated otherwise by Owner's Representative.
- H. Unique tag numbers shall be given for each valve installed on the project.
- I. Contractor shall provide each valve with a stamped stainless steel tag bearing valve tag number securely fastened to valve with 20-gage stainless steel wire.
- J. Valve tags shall be factory installed. Small bore valves shipped in bulk may have tags field applied.

### 3.02 PREPARATION

- A. Complete and verify field measurements prior to commencement of shop or field fabrication Work. Contractor shall be responsible for making corrections due to failure to investigate and confirm field conditions.
- B. Ream pipe and tube ends, remove burrs, and bevel plain end ferrous pipe.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare piping connections to equipment with flanges or unions.

- E. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
- F. Protect existing structures, piping, equipment, and other materials from damage due to installation of equipment and erection of piping and appurtenances.
- G. Contractor shall strictly adhere to Owner's posted floor load limitations and provide shoring as needed for moving and installing heavy equipment.
- H. Contractor shall be responsible for any and all damage resulting from the installation of equipment and erection of piping systems and shall repair damage to equipment and structures.
- I. Prior to installing equipment and piping, Contractor shall remove temporary protective coatings and wrappings and all other foreign materials. Foreign materials shall be blown out using compressed air.

### 3.03 INSTALLATION – GENERAL

- A. The piping arrangement shown is a design based on currently available equipment. The plans show typical equipment to scale and practical arrangement. Modification shall be necessary during construction, at no additional cost to the Owner, to adapt the equipment layout and piping plans to the precise equipment purchased by the Contractor. Accessibility for operation and maintenance must be maintained.
- B. All piping shall be installed parallel to walls and column centerlines (unless shown otherwise). Fully coordinate work of each trade to provide the designed systems without interference between systems. All piping shall be accurately cut, true, and beveled for welding. All flange faces shall be at 90° to the longitudinal pipe axis on which they are installed. Threaded piping shall be accurately cut, reamed, and threaded with sharp dies. Copper piping work shall be performed in accordance with best practices requiring accurately cut clean joints and soldering in accordance with the recommended practices for the material and solder employed.
- C. Flange bolt holes shall straddle horizontal and vertical centerlines except where noted on the Drawings.
- D. Special joints, where specified (i.e. Dresser Couplings; Chicago couplings; flared and compression joints; lapped, sweated, brazed and bell-and-spigot joints, etc.) shall be used for services, pressures and temperatures for the particular system to be installed.
- E. All piping shall be pitched for drainage at a constant slope of 1" in 40 feet unless otherwise specified for specific piping systems. Steam, condensate, trap discharge, drip, drain, air, gas, and blowdown piping shall pitch down in direction of flow. Service water and oil shall pitch up in direction of flow. Provide valved air vents at top of rise and valved drains at low points for all systems. Gas piping may be run level as it is presumed to be dry, but dirt pockets shall be provided at base of risers.
- F. Variations in route of large bore piping may be made to account for unforeseen circumstances or changes in the field. Notify Owner's Representative prior to making variations in pipe routing and arrangement.
- G. Group small bore piping whenever practical at common elevations.
- H. Avoid routing piping carrying liquid or subject to forming condensation over electrical equipment and panels whenever possible. Piping joints, valves, or accessories shall not be located over electrical equipment at any time.
- I. Provide all required connectors, joint materials, accessories, specialties, and similar items necessary for connection of new and existing equipment being installed under this Contract and/or for connection to equipment being installed by others.
- J. Properly align piping for plum and true connections to equipment, valves, and specialties.
- K. Misalignment of piping shall not be corrected with flexible connectors or expansion joints.

- L. Contractor shall be responsible for making changes and corrections in the field to shop-fabricated piping for proper installation.
- M. For connections to existing piping systems, Contractor shall coordinate scheduling of making connection with Owner's Representative to avoid interference with normal plant operation. Owner shall operate valves for isolation and/or testing.
- N. Flush or blow out piping following erection. Contractor shall furnish all necessary labor and materials to complete flushing and cleaning operations.
- O. Strainers shall be cleaned of debris immediately following initial system operation.
- P. Contractor shall be responsible for repair or replacement of damaged valves, devices, specialties, controls, or equipment due to foreign material left in piping.
- Q. Surface preparation, primer, and painting requirements:
  - 1. Service: Uninsulated piping.
  - 2. Include piping, fittings, valves, specialties, and associated support steel. Piping shall be color coded as follows:
- R. Valves shall be located and stems oriented to permit proper and easy operation and access to valve bonnet for maintenance of packing, seat, and disc. Valve stems shall not be below centerline of pipe. Refer to plans for stem orientation. Where valves are more than 7 feet above the floor or platform, stems shall be horizontal unless shown otherwise. Valves more than 10 feet above floor or platform shall have chain wheel and chain for operation from floor or platform. Provide hammer-blow wheel on any valve that cannot be opened or tightly closed by one person.
- S. Provide union adjacent to all threaded end valves.
- T. Provide valves as necessary to permit maintenance of a device or sub-system without discontinuing service to other elements of that service or system.
- U. Provide ¾" ball valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.
- V. Contractor shall install valves with sufficient gland packing as required for satisfactory operation and in accordance with manufacturer's recommendations.

### 3.04 WELDING

- A. The Contractor is entirely responsible for the quality of the welding and shall:
  - 1. Conduct tests of the welding procedures used by its organization, determine the suitability of the procedures used, determine that welds made shall meet the required tests, and also determine that the welding operators have the ability to make sound welds under standard conditions.
  - 2. Comply with ASME B31.1 and AWS D1.1.
  - 3. Perform all welding operations required for construction and installation of the piping systems.
- B. Beveling: Field bevels and shop bevels shall be done by mechanical means or by flame cutting. Where beveling is done by flame cutting, surfaces shall be thoroughly cleaned of scale and oxidation just prior to welding. Conform to specified standards.
- C. Alignment: Utilizing split welding rings is not allowed. Complete weld penetration and prevention of weld spatter reaching the interior of the pipe.
- D. Erection: Piping shall not be split, bent, flattened, or otherwise damaged before, during, or after installation. If the pipe temperature falls to 32°F or lower, the pipe shall be heated to approximately 100°F for a distance of 1 foot on each side of the weld before welding, and the weld shall be finished before the pipe cools to 32°F.
- E. Welding process shall be shielded metal arc either stick or covered electrode welding with inert gas root pass (TIG) for initial two passes and an E7018 electrode for final pass.

- F. Contractor shall strictly follow Owner's procedures and regulations for hot work prior to and during welding processes. Coordinate directly with Owner's Representative.
- G. Each weld shall be properly identified with specific welder's identification and a unique weld number in accordance with applicable codes and standards. Attach identification near weld and permanently mark identification at weld.
- H. Non-destructive examination of piping welds:
  - 1. The Owner (or Special Inspector) may test up to 10% of the welded piping joints to be examined using radiographic testing. If defective welds are discovered, the Owner's Representative or Special Inspector may require examination of all pipe joint welds at Contractor's expense.
  - 2. Owner may choose to employ magnetic particle testing, dye penetrant, or other testing methods.
  - 3. Owner will employ an independent testing firm regularly engaged in radiographic testing to perform the radiographic examination of pipe joint welds.
  - 4. If independent testing agency finds any failures, Contractor shall correct deficiencies found to the satisfaction of the testing firm. Testing firm shall complete radiographic testing of 100% of the welds and Contractor's expense.
    - a. Comply with ASME B31.1. Furnish a set of films showing each weld inspected, a reading report evaluating the quality of each weld, and a location plan showing the physical location where each weld is to be found in the completed project.
    - b. The Owner reserves the right to review all inspection records of supplemental testing. All radiographs will be reviewed and interpreted by an ASNT Certified Level III radiographer, employed by the testing firm, who will sign the reading report.
  - 5. Owner may perform destructive tests for compliance with applicable codes. If destructive tests indicate that welds meet requirements, Owner shall pay for costs of repairs. If tests indicated non-compliance, cost of replacement, repairs, and retesting shall be paid by Contractor.
- I. Defective welds: Replace and reinspect defective welds. Repairing defective welds by adding weld material over the defect or by peening is not permitted. Welders responsible for defective welds must be requalified.
- J. Electrodes: Electrodes shall be stored in a dry, heated area and be kept free of moisture and dampness during the fabrication operations. Discard electrodes that have lost part of their coating.

### 3.05 PIPING JOINTS

- A. All butt-welded piping shall be welded at circumferential joints; carbon steel flanges shall be weld neck type; lap joint flanges are allowed on stainless steel piping.
- B. Companion flanges at equipment or valves shall match flange construction of equipment or valve. Raised face shall be removed at all companion flanges when attached to flanges equipped for flat face construction.
- C. Gaskets and bolting shall be applied in accordance with the recommendations of the gasket manufacturer and bolting standards of ASME B31.1. Strains shall be evenly applied without overstress of bolts. Gaskets shall cover entire area of mating faces of flanges.
- D. Screw threads shall be made up with Teflon tape except gas and oil piping joints, as recommended by the sealant manufacturer for the intended service, which shall utilize specified joint compound.
- E. Solder joints shall be made up in accordance with recommended practices of the materials applied.
- F. Flood refrigerant piping system with nitrogen when brazing.
- G. Flanged joints:

1. Flanges shall be made up before completing last weld of connecting pipe. Gaskets shall not be installed until after completion of final welds.
2. Bolt threads shall be coated with anti-seize compound and shall not be tightened to the point of overstressing bolt, providing uniform pressure on gaskets.
3. Bolts shall be tightened in a star pattern and in 3 passes.
4. Bolt tightness shall be verified in accordance with Commissioning Agent's Installation Verification Checklists.

### **3.06 BRANCH INTERSECTION CONNECTIONS**

- A. Factory-built reinforced tees and laterals are required.
- B. Factory-built integrally reinforced forged-steel branch outlet fittings may be used on reduced-size connections upon approval of Owner's Representative. They shall comply with MSS-SP-97.

### **3.07 EXPANSION AND FLEXIBILITY**

- A. The design includes provision for piping expansion due to pressure, thermal, weight, and seismic (where applicable) effects. It is the Contractor's responsibility to avoid reduction in flexibility and increase in stress in piping systems. Major deviation shall be shown by submittal for review of scale working drawings and stress calculations for the piping systems. Contractor shall provide any necessary additional construction and materials to limit stresses to safe values as directed by the Owner's Representative and at no additional cost to the Owner.

### **3.08 SIZE CHANGES**

- A. Piping size changes shall be accomplished by use of line reducers or reducing tees. Apply eccentric reduction in all piping requiring continuous drainage. Concentric reduction may be applied in run of piping involving pressure water systems except at pump inlets. Use concentric increasers where flow is in direction of increased size. Use eccentric reduction, top flat, at all pump suction connections.

### **3.09 MINOR PIPING**

- A. Minor piping associated with instrumentation and control is generally not shown. Interconnection of sensors, transducers, control devices, instrumentation panels, distributed control system, and equipment control panels is the responsibility of the Contractor. Small piping associated with water cooling, drips, drains, and other minor piping may not be shown to avoid confusion in the plan presentation but shall be provided as part of Contract Work.
- B. Connection shall be made at shop for shop-fabricated arrangements prior to final erection for field-fabricated sections.

### **3.10 DIELECTRIC CONNECTION**

- A. Where piping of dissimilar metals is tied together, use dielectric connections.

### **3.11 INSTALLATION – PIPE SLEEVES**

- A. Coordinate penetrations and sleeves with equipment and piping suppliers under this Contract. Contractor shall be responsible for completing repairs and restoration caused by failure to coordinate with suppliers.
- B. Use core drill or radial saw for cutting non-structural members. Where piping passes through steel grating or checkered plate, cut circular opening and weld pipe sleeve to grating bars.
- C. Restore area affected to good condition following installation of sleeve.
- D. Accurately locate and securely fasten sleeves to forms before concrete is poured; install in walls or partitions during the construction of the walls.
- E. Sleeve ends shall be flush with finished faces of walls and partitions.
- F. No wiring, conduit, or any other piping shall be routed through a pipe sleeve designed for another pipe.

- G. Piping and sleeves passing through all fire- or smoke-rated floors, roofs, walls, and partitions shall be provided with firestopping. Space between wall/floor and pipe, sleeve, and/or duct shall be sealed with UL-listed intumescent fire barrier material equivalent to rating of wall/floor. Where piping and sleeves pass through floors, roofs, walls, and partitions that are not fire or smoke rated, penetrations shall be sealed with grout or caulk.
- H. Exterior watertight entries: Seal with mechanical sleeve seals.
- I. Set sleeves in position in forms. Provide reinforcing around sleeves.

### **3.12 EQUIPMENT INSTALLATION**

- A. Provide permanent supports for equipment installed under this Contract (including equipment furnished under Owner procurement contracts) as indicated on Drawings and as needed for secure and vibration-free operation.
- B. Remove all temporary coatings, wrappings, lifting lugs, etc. from equipment. Provide touch-up paint as needed to match manufacturer finish.
- C. Contractor shall complete equipment alignment for equipment provided under this Contract and under Owner procurement contracts prior to initial operation. Manufacturer's Representative shall be present during alignment.
- D. Check alignment after ductwork connections have been made but before supply and exhaust fans are operated and verify alignment through hot run.
- E. Contractor shall provide labor and materials to completely rotate equipment within manufacturer's required tolerances and to satisfaction of Commissioning Agent.

### **3.13 INSTALLATION – SAFETY VALVES, RELIEF VALVES AND SAFETY-RELIEF VALVES**

- A. Orient valves so that lifting levers are accessible from nearest walkway or access platform. Valves must be removable without requiring disassembling of vents, except where otherwise specifically provided.
- B. Provide relief valves on pressure tanks, low-pressure side of reducing valves, heat exchangers, and expansion tanks.
- C. Select system relief valve capacity greater than make-up pressure reducing valve capacity. Select equipment relief valve capacity to exceed rating of connected equipment.
- D. Pipe relief valve outlet to nearest floor drain.
- E. Where one line vents several relief valves, make cross sectional area equal to sum of individual vent areas.

### **3.14 INSTALLATION – STRAINERS: Y TYPE**

- A. Install strainers to allow access for normal blow down and screen replacement operations.

### **3.15 INSTALLATION – MISCELLANEOUS PIPING SPECIALTIES**

- A. Locate test plugs adjacent to thermometers and thermometer sockets, adjacent to pressure gages and pressure gage taps, and adjacent to control device sockets.
- B. Where large air quantities accumulate, provide enlarged air collection standpipes.
- C. Install calibrated balancing valves on hydronic systems as shown on Drawings and as required for proper testing, adjusting, and balancing of all hydronic systems. Installation shall be in strict accordance with Manufacturer's recommendations.

### **3.16 FIELD QUALITY CONTROL**

- A. Prior to conducting testing procedures of water lines, provide 72 hours' notice to Owner's Representative.
- B. Hydrostatic pressure testing shall be in accordance with ASME B31.1, unless otherwise indicated.

- C. Testing of piping components is not required prior to installation. Valves and fittings shall be capable of withstanding hydrostatic shell test equal to twice the primary design service pressure except as modified by specifications on fittings, ASME B16.5 or ASME B16.47. This test capability is a statement of quality of material. Tests of individual items of pipe, fittings, or equipment shall be required only on instruction of Owner's Representative.
- D. Provide all equipment, fittings, blind flanges, plugs, temporary piping, valves, hoses, instrumentation, backflow preventer, water meter, and specialties not shown on Drawings, but necessary for completion of filling and pressure testing of piping systems.
- E. Construction phasing will require the Contractor to conduct pressure testing of piping as each phase and associated work is complete.
- F. After erection, before painting or insulation, all piping systems (shop-fabricated and field-fabricated) shall be capable of withstanding a hydrostatic test pressure of 1.5 times design pressure, as stipulated in ASME B31.1. When hydrostatic tests show leaks, Contractor shall complete necessary welding repairs, in accordance with ASME B31.1, at the Contractor's cost.
- G. Hydrostatically test natural gas piping at twice the service pressure entering Owner's property from utility service. After the hydrostatic test has been completed, the natural gas piping must be thoroughly dried prior to being placed into service. Contractor shall provide all necessary equipment for drying of pipe and include time within construction schedule.
- H. Protect equipment, specialties, instruments, devices, and other items connected to piping system subject to damage from hydrostatic pressure test. Provide necessary provisions for isolating (blinds, etc.) equipment (chillers, pumps, heat exchangers, etc.).
- I. Perform operating test as follows:
  - 1. Test condensate and service water systems under service conditions and prove tight.
  - 2. Test compressed-air systems under service conditions at pressure equal to highest setting of safety and relief valves in the individual systems.
  - 3. Make corrections and retests to establish systems have no leaks. Replace or recut any defective fittings or defective threads. Soldered material shall be thoroughly cleaned prior to resoldering. Back welding of threads is not permitted.
- J. Owner reserves the right to complete independent examinations and testing of piping, joints, and fittings to confirm compliance with the requirements of ASME B31.1 and this specification. Examination and tests may include, but are not limited to visual examination, liquid penetrant testing, ultrasonic testing, or radiography.
- K. A signed and dated affidavit of testing shall be provided to the Superintendent within 72 hours of completion of testing. Each affidavit shall contain, as a minimum, the date of the test, system or subsystem tested, test medium and pressure, duration of test, test results, name and signature of individual performing test, and the name and signature of witness to the test and whether the portion of pipe tested meets state and local regulations and Owner requirements for leak testing. Copies of all affidavits shall be included in the Operation and Maintenance Manuals.

**END OF SECTION**

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**SECTION 40 0529  
SUPPORTS AND ANCHORS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Pipe hangers and supports.
- B. Hanger rods.
- C. Inserts.
- D. Flashing.
- E. Sleeves.
- F. Mechanical sleeve seals.
- G. Formed steel channel.

**1.02 REFERENCES**

- A. American Society of Mechanical Engineers:
  - 1. ASME B31.1 – Power Piping.
  - 2. ASME B31.5 – Refrigeration Piping.
  - 3. ASME B31.9 – Building Services Piping.
- B. American Welding Society:
  - 1. AWS D1.1 – Structural Welding Code - Steel.
- C. Manufacturers Standardization Society of the Valve and Fittings Industry:
  - 1. MSS SP 58 – Pipe Hangers and Supports - Materials, Design, and Manufacturer.
  - 2. MSS SP 69 – Pipe Hangers and Supports - Selection and Application.
  - 3. MSS SP 89 – Pipe Hangers and Supports - Fabrication and Installation Practices.
- D. Underwriters Laboratories Inc.:
  - 1. UL 263 – Fire Tests of Building Construction and Materials.
  - 2. UL 723 – Tests for Surface Burning Characteristics of Building Materials.
  - 3. UL 1479 – Fire Tests of Through-Penetration Firestops.
  - 4. UL 2079 – Tests for Fire Resistance of Building Joint Systems.
  - 5. UL – Fire Resistance Directory.
- E. Intertek Testing Services (Warnock Hersey listed):
- F. WH – Certification Listings.

**1.03 SUBMITTALS**

- A. Shop Drawings:
  - 1. Piping isometric Drawings showing location and type of each hanger, fabricated inserts, structural attachment, and support. Coordinate support Drawings with piping fabrication isometrics. Refer to Section 40 05 13 – Common Work Results for Process Piping for requirements.
  - 2. Catalog cuts showing design and construction of each hanger and support and conformance of hangers and supports to MSS standards.
  - 3. Drawings showing arrangement and sizes of all components comprising each spring-type hanger and support assembly.
  - 4. Design of pipe support for miscellaneous piping not detailed on Drawings.
- B. Product data:
  - 1. Hangers and supports: Submit manufacturer's catalog data including load capacity.
  - 2. Firestopping: Submit data on product characteristics, performance, and limitation criteria.

- C. Design data: Indicate load-carrying capacity of trapeze, multiple pipes, and riser support hangers. Indicate calculations used to determine load-carrying capacity of trapeze, multiple pipes, and riser support hangers.
- D. Manufacturer's installation instructions: Hangers and supports: Submit manufacturer's published literature indicating proper installation procedures.
- E. Manufacturer's certificate: Certify products meet or exceed specified requirements.

#### **1.04 QUALIFICATIONS**

- A. Professional Engineer in the state of Iowa will design and seal the design of attachment of support to existing structure, modifications to existing structure, and associated supplementary steel.
- B. Supports not detailed on the Drawings for piping 2" and smaller: Indicate calculations used to determine load-carrying capacity of trapeze, multiple pipes, and riser support hangers. These supports may be selected from manufacturer's data (no Professional Engineer seal required). If pipe supports are not detailed on the Drawings, Contractor shall design and provide pipe supports per applicable industrial standards.

#### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. Protect from weather and construction traffic, dirt, water, chemicals, and damage by storing in original packaging.

#### **1.06 FIELD MEASUREMENTS**

- A. Verify field measurements prior to fabrication. If products have to be replaced because proper field verification was not performed before fabrication, the new product shall be provided at no cost to the Owner.

#### **1.07 SELECTION**

- A. Contractor is responsible for selecting supports for piping 2" and smaller if not detailed on Drawings.
- B. Piping 2 1/2" and larger (and some smaller pipes): Shall conform to MSS SP-58.

### **PART 2 PRODUCTS**

#### **2.01 PIPE HANGERS AND SUPPORTS**

- A. Manufacturer: Anvil International, Advanced Thermal Systems, Piping Technology and Products, Lisega, Bergen Pipe Supports, or equal. If manufacturer is indicated on Drawings for a pipe support type, Contractor shall conform to this design unless specifically approved by Design Professional.
- B. Unless accepted by Design Professional, the use of supports that rely on stressed thermoplastic components to support the pipe shall not be permitted.
- C. Contact between dissimilar metals, including contact between stainless steel and carbon steel, shall be prevented. Portions of pipe supports that come into contact with other metals that are dissimilar shall be rubber or vinyl coated. Supports for brass or copper pipe or tubing shall be copper plated or plastic coated.
- D. Hangers and supports shall conform to requirements of MSS SP-58, and ASME B31.1.
- E. Support equipment shall have standard shop-applied primer and finish coat. Exterior supports shall be galvanized unless noted otherwise.
- F. All pipe hanger and support devices must be in compliance with specified MSS SP-58 type numbers, have published load ratings, and be products of engineered pipe support manufacturers.

- G. All attachments to structural steel members shall be made using welded beam attachments. No beam clamps of any type may be used in pipe support applications.
- H. All pipe stresses and forces and movements on connecting equipment and structures shall be within the allowances of the ASME B31.1 code, applicable building codes, and equipment manufacturer's design limits.
- I. Contractor shall not delete or relocate the supports, expansion joints, or couplings indicated on the Drawings without written approval of the Design Professional.
- J. NOTE: Unistrut®, or similar strut-type supports, shall not be used in pipe support applications in any instance. Regardless of whether or not the system can support piping loads, Unistrut®, or other strut-type supports, shall not be used.

## **2.02 ACCESSORIES**

- A. Hanger rods: Mild steel-threaded both ends, threaded on one (1) end, or continuous threaded.

## **2.03 INSERTS**

- A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, and lugs for attaching to forms; size inserts to suit threaded hanger rods.

## **2.04 ADDITIONAL SUPPORT STEEL**

- A. Material: ASTM A36, Grade 50.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Do not drill or cut structural members.

### **3.02 INSTALLATION – INSERTS**

- A. Install inserts for placement in concrete forms.
- B. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
- C. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4" and larger.
- D. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
- E. Where inserts are omitted or concrete is existing, drill into concrete slab and use expansion anchor bolts with concrete single lug plate, concrete clevis plate, or concrete rod attachment, whichever is more appropriate for the application.

### **3.03 INSTALLATION – PIPE HANGERS AND SUPPORTS**

- A. Install in accordance with ASME B31.1, ASME B31.9, MSS SP 58, MSS SP 69, MSS SP 89, and the International Plumbing Code.
- B. Support horizontal piping as shown on plans.
- C. Coordinate support locations with building structure prior to erection of piping. Also, refer to approved Shop Drawings of equipment and approved piping layout and hanger layout Drawings when locating hangers. Arrangement of supports shall facilitate operating, servicing, and removal of valves, strainers, and piping specialties. Hanger parts must be marked at the factory with a numbering system keyed to hanger layout Drawings. Layout Drawings must be available at the site.
- D. Install hangers with minimum 4" space between finished covering and adjacent work.
- E. Place hangers within 12" of each horizontal elbow.
- F. Use hangers with 2" minimum vertical adjustment.
- G. Support horizontal cast iron pipe adjacent to each hub, with five (5) feet maximum spacing between hangers.

- H. Support vertical piping at every other floor. Support vertical cast iron pipe at each floor at hub.
- I. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.
- J. Support riser piping independently of connected horizontal piping.
- K. Design hangers for pipe movement without disengagement of supported pipe.
- L. Provide clearance in hangers and from structure and other equipment for installation of insulation.
- M. Pipe supports for insulated cold piping systems shall be sized for the outside diameter of the insulated pipe, and an insulation protection shield shall be installed between the support and the insulation. Rigid insulation inserts shall be installed between the pipe and the insulation shields for piping larger than 2" or when needed to prevent crushing of the insulation. Inserts shall be of the same thickness as the adjacent insulation and shall be vapor sealed.
- N. No piping shall be supported from the pipe above or any other pipe.
- O. Unless otherwise indicated on the Drawings or acceptable to Owner's Representative, piping shall be supported approximately 1 ½" out from the face of walls and at least 3" below ceilings.

#### **3.04 INSTALLATION – FLASHING**

- A. Provide flexible flashing and metal counterflashing where piping penetrates weather- or water-proofed walls, floors, and roofs.
- B. Flash vent and soil pipes Projecting 3" minimum above finished roof surface with sealant worked 1" minimum into hub, 8" minimum clear on sides with 24" x 24" sheet size. For pipes through outside walls, turn flanges back into wall and caulk, metal counter-flash, and seal.
- C. Seal floor drains watertight to adjacent materials.
- D. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

#### **3.05 INSTALLATION – EQUIPMENT BASES AND SUPPORTS**

- A. Use templates furnished with equipment (if not furnished make a template). Install anchor bolts and accessories for mounting and anchoring equipment, per MSS-SP 89.
- B. Set sleeves in position in forms. Provide reinforcing around sleeves.
- C. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- D. Install chrome-plated steel escutcheons at finished surfaces.

**END OF SECTION**