PROJECT MANUAL

PROJECT NAME:

Newton Correctional Facility (NCF), Iowa Prison Industries (IPI), Homes For Iowa (HFI) Phase II – Perimeter Fence

PROJECT ADDRESS:
Newton Correctional Facility (NCF)
Iowa Prison Industries (IPI)
Homes For Iowa (HFI)
307 S. 60th Ave. W
Newton, IA, 50208

PROJECT DATE: June 01, 2026

OWNER:
Iowa Department of Administrative Services
109 Southeast 13th Street
Des Moines, Iowa 50319

OWNER PROJECT NUMBER: 9239.04

OWNER REQUEST FOR BID NUMBER: RFB 923904-01

CONSTRUCTION MANAGER:
The Samuels Group
2929 Westown Parkway
Suite 200
West Des Moines, IA
50266

CONSTRUCTION MANAGER PROJECT NUMBER: 7892

Farnsworth Group
14225 University Ave.
Ste 110
Waukee, IA
50263

ARCHITECT PROJECT NUMBER: 02401959.001

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DOCUMENT 00 01 05

CERTIFICATIONS

RFB #923904-01

I HEREBY CERTIFY THAT THE PORTION OF THIS TECHNICAL SUBMISSION DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND RESPONSIBLE CHARGE. I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: _____

NAME: ROBERT C. RIDGWAY

DATE: _____

LICENSE RENEWAL DATE: _____

PAGES OR DIVISIONS COVERED:

_____

_____

_____

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.

SIGNATURE: _____

NAME: DAVID B. BENTZ, P.E.

DATE: _____

LICENSE RENEWAL DATE: _____

PAGES OR DIVISIONS COVERED:

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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

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SECTION 00 1113

NOTICE TO BIDDERS

RFB #923904-01

The Iowa Department of Administrative Services will be receiving bids for exterior improvements and earthwork for the construction of perimeter fence and sally port at the Newton Correctional Facility (NCF), Iowa Prison Industries (IPI), Homes For Iowa (HFI) Facility Production Site, 307 S 60th Ave W, Newton, Iowa 50208

The Iowa Department of Administrative Services anticipates construction to begin on September 14, 2026 and end on November 27, 2026.

Bids must be received no later than **2:00 pm, Thursday, June 19, 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
https://teams.microsoft.com/meet/291394094182366?p=mVK8hIuOWGlI7i8qVR
and teleconference number 469-998-6043 Pin: 198005986# at 3:00 pm on June 19, 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, June 12, 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, June 12, 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, June 10, 2026 at 10:00 am at Newton Correctional Facility (NCF), Iowa Prison Industries (IPI), **Homes For Iowa (HFI) Facility Production Site**, 307 S 60th Ave W, Newton, Iowa 50208. This meeting is not mandatory but is highly recommended.

Bidding Documents, including drawing sheets bearing the project name Newton Correctional Facility, Iowa Prison Industries – Phase II – Perimeter Fence, Dated 06/01/26 and the Project Manual prepared by Farnsworth Group dated 06/01/26, may be obtained from Beeline & Blue by visiting www.beelineandblue.com or by calling (515) 244-1611 on Friday, June 05, 2026.

For further information regarding this project contact:
Michael Bradbury – Issuing Officer
Phone: 515-823-9327
E-Mail: construction.procurement@das.iowa.gov

END OF SECTION

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INSTRUCTIONS TO BIDDERS

RFB #923904-01

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
S. Bid Closing
T. Basis of Bids
U. Informalities/Rejection of Bids
V. Consideration of Bids
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: The project includes exterior improvements and earthwork for the construction of perimeter fence and sally port at the Newton Correctional Facility (NCF), Iowa Prison Industries (IPI), Homes For Iowa (HFI) Facility Production Site, 307 S 60th Ave W, Newton, Iowa 50208.

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: Michael Bradbury – Senior Statewide Procurement Officer, State of Iowa, Department of Administrative Services, Hoover State Office Building, 3rd floor, 1305 East Walnut Street, Des Moines, IA 50319-0105, Phone: 515-823-9327 (Mobile); email: construction.procurement@das.iowa.gov

B. OWNER REPRESENTATIVE: Brad Tonyan, State of Iowa, Department of Administrative Services, 109 SE 13th Street, Des Moines, IA 50319, Phone: 515-360-7718; email: brad.tonyan@das.iowa.gov

C. ON-SITE COORDINATOR: Chad Squires, Supervisor, Iowa Prison Industries, 307 S. 60 Ave. W, Newton, IA 50208 Phone: 641-275-5982; email: chad.squires@iowa.gov

D. CONSTRUCTION MANAGER CONTACT: Jerry Dehnke, The Samuels Group, 2929 Westown Parkway, Suite 200, West Des Moines, IA 50266, Phone: 515-661-7142; email: jdehnke@samuelsgroup.net

E. DESIGN PROFESSIONAL CONTACT: Architect, Leona Sears, Farnsworth Group Inc, 14225 University Ave, Suite 110, Waukee, IA 50263, Phone: 515-225-3469; email: lsears@f-w.com

F. DESIGN PROFESSIONAL CONTACT: Civil Engineer, David B. Bentz, P.E., Bishop Engineering Company Inc, 3501 104th St, Des Moines, IA 50322, Phone: 515-276-0467; email: dbbentz@bishopengr.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)
         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.2l 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

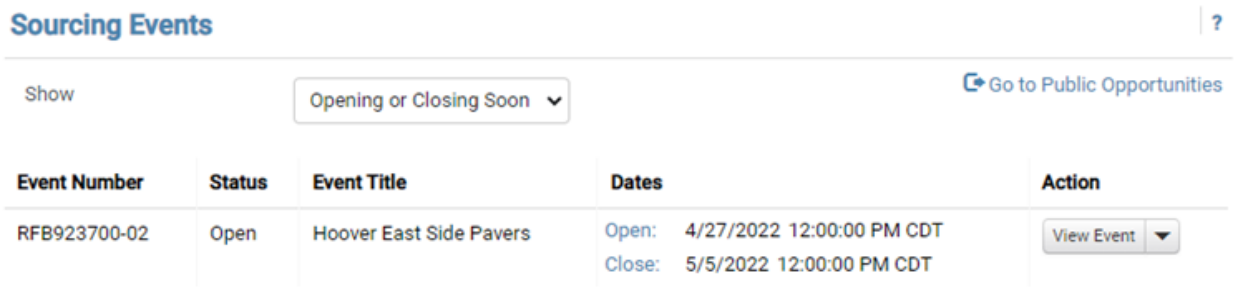
IMPACS Public Construction Bidders User Guide

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.



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.

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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 Agent's Name Agent's Address	CONTACT NAME: Agent's Information PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED Trade Contractor's Name Trade Contractor's Mailing Address	INSURER(S) AFFORDING COVERAGE / NAIC # INSURER A: Company A(AM Best Rated A/VI or Better) — Admitted Carriers INSURER B: 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 INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS Minimum	
* A	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:	X	X	#TBD- CGL	3/1/17	3/1/18	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ $ $ 1,000,000 $ 2,000,000 $ 1,000,000
B	AUTOMOBILE LIABILITY [X] ANY AUTO ALL OWNED AUTOS HIRED AUTOS SCHEDULED AUTOS NON-OWNED AUTOS	X	X	#TBD-AL	3/1/17	3/1/18	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	UMBRELLA LIAB [X] OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED RETENTION $	X	X	#TBD-UMB	3/1/17	3/1/18	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	#TBD-WC	3/1/17	3/1/18	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ 500,000 $ 500,000 $ 500,000
* E	Owners Contrators Protective Liability			#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)	

amount varies based on paragraph 10.2.2 of the ConsensusDocs 802 contract

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 Signature

ACORD 25 (2014/01) The ACORD name and logo are registered marks of ACORD

SECTION 00 2113.02

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PART 1 -

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 – 06/22/2026
B. Anticipated Date of Commencement – 06/30/26
C. Substantial Completion by – 11/27/26

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

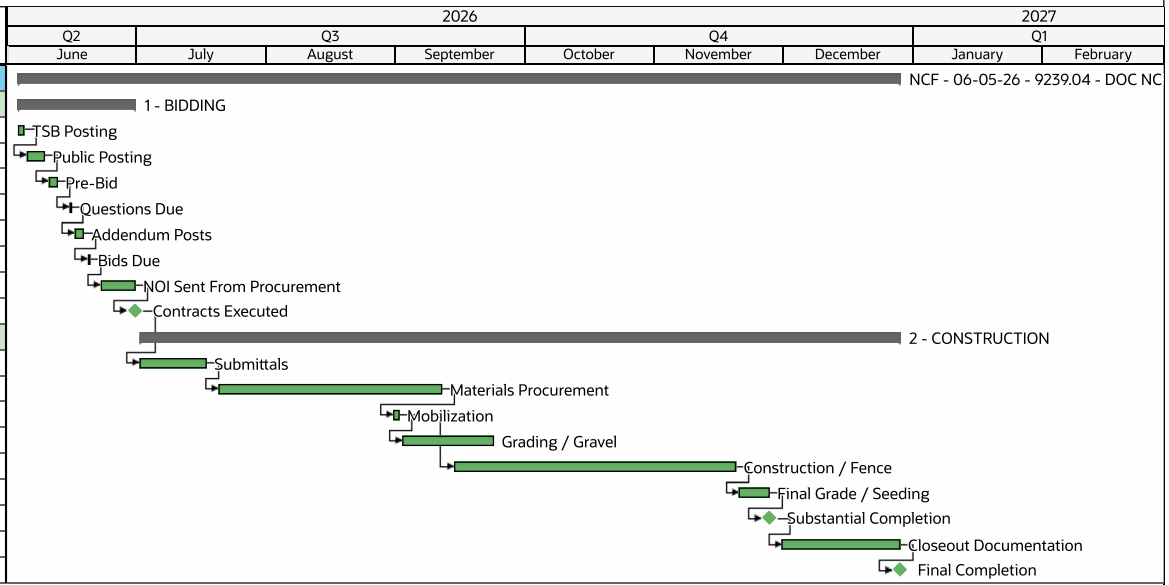
END OF SECTION

DOC NCF IPI Homes For Iowa Facility Project – Phase II - Fencing

Newton, Iowa

RFB923904-01

Name	ID	Planned Duration	Start	Finish
NCF - 06-05-26 - 9239.04 - DOC N...	NCF - 06-05-26	143d	03-Jun-26	28-Dec-26
1 - BIDDING	1	20d	03-Jun-26	30-Jun-26
TSB Posting	PC1000	2d	03-Jun-26	04-Jun-26
Public Posting	PC1010	3d	05-Jun-26	09-Jun-26
Pre-Bid	PC1020	3d	10-Jun-26	12-Jun-26
Questions Due	PC1030	1d	15-Jun-26	15-Jun-26
Addendum Posts	PC1040	3d	16-Jun-26	18-Jun-26
Bids Due	PC1050	1d	19-Jun-26	19-Jun-26
NOI Sent From Procurement	PC1060	7d	22-Jun-26	30-Jun-26
Contracts Executed	PC1070	0d		30-Jun-26
2 - CONSTRUCTION	2	123d	01-Jul-26	28-Dec-26
Submittals	CAC1000	12d	01-Jul-26	17-Jul-26
Materials Procurement	CAC1010	39d	20-Jul-26	11-Sep-26
Mobilization	CAC1013	2d	31-Aug-26	01-Sep-26
Grading / Gravel	CAC1018	15d	02-Sep-26	23-Sep-26
Construction / Fence	CAC1020	47d	14-Sep-26	19-Nov-26
Final Grade / Seeding	CAC1022	5d	20-Nov-26	27-Nov-26
Substantial Completion	CAC1030	0d		27-Nov-26
Closeout Documentation	CAC1040	20d	30-Nov-26	28-Dec-26
Final Completion	CAC1050	0d		28-Dec-26



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 Geotechnical Exploration, NCF IPI Homes For Iowa Facility Project, PN 251210, prepared by Allender Butzke Engineers Inc., dated July 3, 2025, is available for viewing in the Appendix of these documents.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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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. State Building Code Plan Review: The plan review and inspections for this project have been applied for by the Architect. Please contact your inspector prior to construction and occupancy.
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

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SECTION 00 4116

BID FORM

The Bid Form must be submitted online through the State's IMPACS Electronic Procurement System.

RFB #923904-01

BID FORM for CONSTRUCTION CONTRACT
for
Newton Correctional Facility (NCF)
Iowa Prison Industries (IPI)
Homes For Iowa (HFI) – Phase II
307 S 60th Ave W, Newton, Iowa 50208
Project 9239.04

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 *June 01, 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: NCF IPI HFI Phase II Perimeter Fence Project

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

_____

_____ Dollars

($_____).

UNIT PRICES:

UNIT 01

Description: Over-Excavation & Replacement of Unsuitable Fill (per cubic yard)

_____

_____ Dollars

($_____). (per cubic yard)

UNIT 02

Description: Additional Crushed Rock Surface (per cubic yard)

_____

_____ Dollars

($_____). (per cubic yard)

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

CONTRACTOR	**BID NO.**	**PAGE #**

(to be completed by bidder)

You are requested to provide the information on this form showing your targeted Small Business enterprises contacts 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.

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").

By virtue of this Bid Bond (the "Bond"), the Constructor as Principal and _____ as Surety ("Surety"), are bound to the Owner as Obligee 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 Obligee shall accept the bid of the Constructor, the Constructor shall enter into an Agreement with the Obligee 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 Obligee the difference between the amount of Constructor's bid and the amount of such agreement the Obligee 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)

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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

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 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 constructionmeans, 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 Contactor'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 Contract 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 [X] 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. f 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 be 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 propertyinsurance,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.)

[X] 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.

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.

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,

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)

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.

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 Obligee in the maximum amount of _____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. 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: _____

Print Title: _____

Witness: .....

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

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: Newton Correctional Facility (NCF), Iowa Prison Industries (IPI), Homes For Iowa (HFI) Production Site, 307 S 60th Ave W, Newton, Iowa 50208
B. DAS Project #: 9239.04
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: Brad Tonyan, Iowa Department of Administrative Services, 109 SE 13th Street, Des Moines, IA 50319
E. Construction Manager: Jerry Dehnke, The Samuels Group, 2929 Westown Parkway Suite 200, West Des Moines, IA 50266

1.03 PROJECT SUMMARY

A. The project includes exterior improvements and earthwork for the construction of perimeter fence and sally port at the Newton Correctional Facility (NCF), Iowa Prison Industries (IPI), Homes for Iowa (HFI) Facility Production Site, 307 S 60th Ave W, Newton, Iowa 50208.
B. Target date to provide substantial completion is November 27, 2026.

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. All turf, landscaping, and existing structures disturbed by contractors shall be repaired or restored to pre-construction conditions.
8. Protect adjacent existing building elements from damage from Scope of work. Repair existing building elements damaged during Contractor's Scope of work.
9. Tool control shall be in place for this facility. Contractors shall log in tools at the start of each shift and log out tools at the end of each shift. Contractors should assume a minimum of 15 minutes for Check in and minimum of 15 minutes check out process of tools.

1.05 WORK HOUR RESTRICTIONS

A. **Iowa Prison Industries Site** standard work hours are from 7:00 AM to 3:30 PM, Monday through Friday. Additional hours and weekend work would need to be approved by the State of Iowa IPI Facility and will need to be coordinated with the construction manager and the facility.

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 always conduct themselves in an agreeable manner. Failure to do so may result in removal from the work site.
D. All t**rade Contractors shall be responsible for the cleanup of their own work. Provide means and methods to ensure construction debris and materials are collected and transported to dumpsters on a daily basis.**
E. OSHA standards shall be followed on the site and premises.

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.
D. Iowa Prison Industries, Homes For Iowa fabrication facility will be operational during the construction period of this project. Coordinate all construction activities with the construction manager and facility to accommodate facility operations.

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.
Q. **Contractors shall not wear orange or yellow T-shirts/sweatshirts. High visibility vests with reflective surface shall be allowed per OSHA standards.**
R. **Contractors shall wear hardhats, safety glasses, and high visibility vests at all times when on site.**
S. Contractors shall not interact with inmates/offenders. Contractors shall immediately notify the facility if inmates/offenders pursue interaction with contractors.
T. Contractors shall not wear sleeveless T-shirts or shorts. The minimum length of shirt sleeves shall be four inches and all pants shall be full length.

1.09 BID PACKAGE INSTRUCTIONS

A. **Bid Package #01 – Homes for Iowa Phase II - Fencing**: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
   1. All labor, material, and equipment for the construction of the Newton Correctional Facility, Homes for Iowa Facility Project – Phase II – Fencing Project 9239.04 (RFB923904-01)
   2. Contractor's Work shall be performed in accordance with the Drawings, Specification Divisions 00 and 01, and applicable technical specification sections for the scope of work.
   3. Incudes Division 03 (Section 03 3000)
   4. Includes Division 31 (Sections 31 1000, 31 2000, 31 2200, 31 2316, 31 2323, 31 2333, and 31 3500)
   5. Includes Division 32 (Sections 32 1123, 32 1313, 32 1373, 32 3113, 32 3114, 32 9119, and 32 9219)
   6. Includes all survey and layout related to this bid package.

B. **Unit Price #01 - Over-Excavation & Replacement of Unsuitable Fill**: Trade Contractor shall include all of the following, but not limited to, as part of the contract:

1. Contract Documents indicate, in the Base Bid, areas that shall be graded. Unit Prices will be utilized for unknown conditions not included in the base bid.
2. In the event inadequate soil or unexpected rubble is encountered during the excavation of soils additional removal and replacement of fill will be required by the contractor. Quantities will be calculated in accordance with this section. Architect to be notified immediately upon discovery before work is performed.
3. The unit price quoted is to cover additional quantities of removal or replacement of unsuitable material beyond the base quantity required.
4. Unit Price shall include over-excavation of uncontaminated debris, soil, fill, foundations, rubble, concrete, etc. and placement of engineered fill beyond the scope of work indicated in the Contract Documents. Assume worst uncontaminated removal conditions and most stringent fill and compaction requirements.
5. If contaminated materials are to be removed, the incremental cost to cover the contamination shall be negotiated in accordance with the general conditions and added to the quoted unit price.
6. State the amount per cubic yard for additional removal and replacement of inadequate fill at the direction of the Structural Engineer and Contracting Officer. This same unit price shall also be used if less removal and replacement is required than indicated on the site plan.
7. Unit Price No. 1: Dollar - Per cubic yard
8. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
9. Owner reserves the right to reject Contractor’s measurements of work in place that involves use of established unit prices and to have this work measured, at the Owner’s expense, by an independent surveyor acceptable to the Contractor.

C. **Unit Price #02 - Additional Crushed Rock Surface**: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
1. Contract Documents indicate, in the Base Bid, areas that shall receive crushed rock. Unit Prices will be utilized for unknown conditions not included in the base bid.
2. In the event additional crushed rock is required due to unknown conditions or the Contracting Officers discretion, additional crushed rock shall be provided by the contractor. Quantities will be calculated in accordance with this section. Architect to be notified immediately upon discovery before work is performed.
3. The unit price quoted is to cover additional quantities of crushed rock beyond the base quantity required.
4. Unit Price shall include subbase compaction and grading, and placement of crushed rock beyond the scope of work indicated in the Contract Documents.
5. State the amount per cubic yard for additional crushed rock per the direction of the Contracting Officer. This same unit price shall also be used if less crushed rock is required than indicated on the site plan.
6. Unit Price No. 2: Dollar - Per cubic yard.
7. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.
8. Owner reserves the right to reject Contractor’s measurements of work in place that involves use of established unit prices and to have this work measured, at the Owner’s expense, by an independent surveyor acceptable to the Contractor.

D. **Work Performed by Owner:** Iowa Prison Industries and Newton Correctional Facility will perform the following work items:
1. If Applicable - Relocate all moveable furniture, fixtures and equipment (FF&E), including window treatments; and personal materials from each sequenced work area prior to demolition and construction activities and after new construction is completed.
2. Special Inspections

E. **Owner Furnished Products:** Iowa Prison Industries and Newton Correctional Facility will provide the following materials for installation by the contractor:
   1. None Noted

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

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SECTION 01 22 00

UNIT PRICES

RFB #923904-01

PART 1- GENERAL

1.1 SECTION INCLUDES

A. Measurement and payment criteria applicable to the Work performed under a unit price payment method.

1.2 AUTHORITY

A. Measurement methods delineated in the individual specification sections complement the criteria of this section.
B. Take all measurements and compute quantities. The Architect/Engineer and/or the testing agency will verify measurements and quantities.
C. Assist by providing necessary equipment, workers, and survey personnel as required.

1.3 UNIT QUANTITIES SPECIFIED

A. Quantities and measurements supplied or placed in the work and verified by the Architect/Engineer and/or testing agency determine payment.
B. The Architect and/or Engineer may require more or fewer quantities than those quantities indicated.
C. Additional or fewer quantities will be compensated at the unit price quoted.

1.4 MEASUREMENT OF QUANTITIES

A. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

1.5 PAYMENT

A. Payment Includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Architect/Engineer multiplied by the unit sum/price for Work which is incorporated in or made necessary by the Work.

1.6 SCHEDULE OF UNIT PRICES

A. Item: Over-Excavation & Replacement of Unsuitable Fill.
Contract Documents indicate, in the Base Bid, removal and/or replacement of soil. Unit Prices will be utilized for unknown conditions not included in the base bid.

In the event inadequate soil or unexpected rubble is encountered during the excavation of soils additional removal and replacement of fill will be required by the contractor. Quantities will be calculated in accordance with this section. Architect to be notified immediately upon discovery before work is performed.

The unit price quoted is to cover additional quantities of removal or replacement of unsuitable material beyond the base quantity required.

Unit Price shall include over-excavation of uncontaminated debris, soil, fill, foundations, rubble, concrete, etc. and placement of engineered fill beyond the scope of work indicated in the Contract Documents. Assume worst uncontaminated removal conditions and most stringent fill and compaction requirements.

If contaminated materials are to be removed, the incremental cost to cover the contamination shall be negotiated in accordance with the general conditions and added to the quoted unit price.

State the amount per cubic yard for additional removal and replacement of inadequate fill at the direction of the Structural Engineer and Contracting Officer. This same unit price shall also be used if less removal and replacement is required than indicated on the site plan.

Unit Price No. 1
Dollars ($_____per cubic yard)

B. Item: Additional Crushed Rock Surface
Contract Documents indicate, in the Base Bid, areas that shall receive crushed rock. Unit Prices will be utilized for unknown conditions not included in the base bid.

In the event additional crushed rock is required due to unknown conditions or the Contracting Officers discretion, additional crushed rock shall be provided by the contractor. Quantities will be calculated in accordance with this section. Architect to be notified immediately upon discovery before work is performed.

The unit price quoted is to cover additional quantities of crushed rock beyond the base quantity required.

Unit Price shall include subbase compaction and grading, and placement of crushed rock beyond the scope of work indicated in the Contract Documents.

State the amount per cubic yard for additional crushed rock per the direction of the Contracting Officer. This same unit price shall also be used if less crushed rock is required than indicated on the site plan.

Unit Price No. 2
Dollars ($_____per cubic yard)

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 ☐ _____

_____

_____

_____

_____

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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 Contactor 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 30th of any year needs to be submitted by July 15th 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

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 Procore:

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 (every two weeks) 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. Background checks should be submitted 2 weeks prior to start of on-site activities by each individual employee.
D. Background check forms provided by the State of Iowa.
E. PREA (Prison Rape Elimination Act) video and quiz are to be completed by each individual employee.
F. 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 #

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

Procore. As recommendations are modified by **Procore**, 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 **Procore** 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. **Procore** 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 **Procore** 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 **Procore** to the maximum extent possible. If a form does not exist in **Procore** 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 **Procore** (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 **Procore** 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 **Procore.**

1.06 CONNECTIVITY PROBLEMS

A. **Procore** 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. **Procore** 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 **Procore** 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 **Procore** 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 **Procore** 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. **Procore** project management application (no equal) Provided by Procore Technologies, Inc. www.**Procore**.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

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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 45 00

SPECIAL INSPECTIONS AND TESTS

RFB #923904-01

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes minimum 2024 International Building Code (IBC) required inspections and frequency of inspections.
B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specific quality-assurance and control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
   2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and control procedures that facilitate compliance with the Contract Document requirements.
   3. Requirements for Contractor to provide quality-assurance and control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
   4. Specific test and inspection requirements are not specified in this Section.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1.4 REPORTS AND DOCUMENTS

A. Revise "Test and Inspection Reports" Paragraph below to suit Project. In the case of multiple contracts, consider assigning responsibility for coordination of report submittals to one contract. See Evaluations.
B. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, and telephone number of testing agency.
   4. Dates and locations of samples and tests or inspections.
   5. Names of individuals making tests and inspections.
   6. Description of the Work and test and inspection method.
   7. Identification of product and Specification Section.
   8. Complete test or inspection data.
   9. Test and inspection results and an interpretation of test results.
   10. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
   11. Name and signature of laboratory inspector.

12. Recommendations on retesting and re-inspecting.

1.5 SPECIAL INSPECTIONS AND TESTS

A. Special Tests and Inspections: Owner will engage a qualified testing agency or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections included in this Section, and as follows:
B. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
   1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
   2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
C. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
   1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
   2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
   3. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
   4. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
E. Testing Agency Responsibilities: Cooperate with Owner, Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
   1. Notify Owner, Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
   2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
   3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
   4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service.
   5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
   6. Do not perform any duties of Contractor.
F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
   1. Access to the Work.
   2. Incidental labor and facilities necessary to facilitate tests and inspections.
   3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
   4. Facilities for storage and field curing of test samples.
   5. Retain first subparagraph below if required or if not common practice in Project vicinity.
   6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
   7. Security and protection for samples and for testing and inspecting equipment at Project site.
G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
   1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
   1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections.
B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
B. Protect construction exposed by or for inspection activities.

PART 4 - STATEMENT OF SPECIAL INSPECTIONS

4.1 DEFINITIONS

A. Frequency of special inspections and tests:
   1. P (Perform): Perform these tasks for each welded joint, bolted connection, or each member. (AISC 360 & AISC 341)
   2. (Observe): Observe these items on a random basis. Operations need not be delayed pending these inspections. (AISC 360 & AISC 341)
   3. P (Perform): Perform these tasks prior to final acceptance for each item or element. (SDI QA/QC)
   4. (Observe): Inspect these items of an intermittent basis. Operations need not be delayed pending these inspections. (SDI QA/QC)
   5. D (Document): The inspector shall prepare reports indicating that the work has been performed in accordance with the contract documents. Only required for structures designed per AISC 341 – Seismic Provisions for Structural Steel Buildings. (AISC 341)
   6. C (Continuous): Continuous special inspections is the constant monitoring of specific tasks by a special inspector. These inspections must be carried out continuously over the duration of the particular tasks. (2024 IBC)
   7. P (Periodic): Periodic special inspection is inspections by the special inspector who is intermittently present where the work has been or is being performed. (2024 IBC)
B. Wind and Seismic Resistance:
   1. (*): Indicates special inspections required for wind resistance in the following areas:
      a. When Vasd is 120 miles per hour (52.8 m/sec) or greater in wind exposure category B.
      b. When Vasd is 110 miles per hour (52.8 m/sec) or greater in wind exposure category C or D.
   2. (SE) Seismic Elements: Inspections required for seismic resistance only where the structure is designed per AISC 341 – Seismic Provisions for Structural Steel Buildings.
   3. (**): Indicates special inspections required for seismic resistance in the following areas:
      a. Seismic force-resisting systems in structures assigned to Seismic Design Category (SDC) B, C, D, E or F.
      b. Designated seismic systems in structures assigned to Seismic Design Category C, D, E or F.
      c. Storage racks in structures assigned to Seismic Design Category D, E or F.

d. Structural, architectural, mechanical and electrical components in structures assigned to Seismic Design Categories indicated.

4.2 STATEMENT OF SPECIAL INSPECTIONS AND TESTS

Statement of Special Inspections and Test
2024 International Building Code
Project: Newton Correctional Facility IPI Perimeter Fence

B. Concrete Construction (IBC: 1705.3)					
	1. Concrete Construction (IBC: Table 1705.3)				
Required	Verification and Inspection	Continuous	Periodic	Referenced Standard	IBC Reference
☒	a. Inspection of reinforcing steel, including prestressing tendons, and placement.	-	P	ACI 318: Ch. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
☐	b. Welding Reinforcing: Verify weldability of reinforcing bars other than ASTM A 706.	-	P	AWS D1.4, ACI 318: 26.5.4	
☐	c. Welding Reinforcing: Inspect single pass fillet welds, maximum 5/16 inch (8 mm).	-	P	AWS D1.4, ACI 318: 26.5.4	
☐	d. Welding Reinforcing: Inspect all other welds.	C	-	AWS D1.4, ACI 318: 26.5.4	
☒	e. Inspect anchors cast in concrete.	-	P	ACI 318: 17.8.2	
☒	f. Inspect anchors post-installed in hardened concrete members: Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads.	C	-	ACI 318: 17.8.2.4	
☒	g. Inspect anchors post-installed in hardened concrete members: Mechanical anchors and adhesive anchors not defined in B.1.f	-	P	ACI 318: 17.8.2	
☒	h. Verify use of required design mix.	-	P	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
☒	i. Fresh concrete tests: refer to section 03 30 00 for tests.	C	-	ASTM C172, ASTM C31, ACI 318: 26.4.5, 26.12	1908.1
☒	j. Inspect concrete and shotcrete placement for proper application techniques.	C	-	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
☒	k. Verify maintenance of specified curing temperature and techniques.	-	P	ACI 318: 26.4.7-26.4.9	1908.9
☐	l. Inspection of prestressed concrete: Application of prestressing forces.	C	-	ACI 318: 26.9.2.1	
☐	m. Inspection of prestressed concrete: Grouting of bonded prestressing tendons.	C	-	ACI 318: 26.9.2.3	
☐	n. Inspect erection of precast concrete members.	-	P	ACI 318: Ch. 26.8	
☐	o. Verify of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	-	P	ACI 318: 26.10.2	
☒	p. Inspect formwork for shape, location and dimensions of the concrete member being formed.	-	P	ACI 318: 26.10.1 (b)	

E. Soils (IBC: 1705.6)				
	1. Soils (IBC: Table 1705.6)			
Required	Verification and Inspection	Continuous	Periodic	Referenced Standard
☒	a. Verify materials below shallow foundation are adequate to achieve the design bearing capacity.	-	P	
☒	b. Verify excavations are extended to proper depth and have reached proper material.	-	P	
☒	c. Perform classification and testing of compacted fill materials.	-	P	
☒	d. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	C	-	
☒	e. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	-	P	

END OF SECTION

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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. Where available?
   2. Water Supply consists of connections to existing facilities. Where available?
B. The contractor should provide electrical power for all work performed. Contractors should assume use of generator power for construction purposes.
C. The contractor shall provide meter and backflow preventor for any connections to fire hydrant or other yard hydrants at the facility.
D. 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. Temporary sanitary facilities are to be provided by contractor at time of mobilization and through end of construction.
B. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
C. 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.
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

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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 slopped 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

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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 be 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 Procore.

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**

_____

_____

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**

_____

_____

Can 100% payment and retainage payment be released? ❑ **Yes** ❑ **No**

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

RFB #923904-01

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Poured-in-place concrete footings and piers.
B. Curing and sealing concrete.
C. Build-in items by other trades.
D. Related concrete materials

1.2 QUALITY ASSURANCE

A. Perform cast-in-place concrete work in accordance with ACI 318, unless specified otherwise in this Section.

1.3 FIELD REFERENCE MANUAL

A. Work shall conform to the American Concrete Institute ACI 301-89 "Specifications for Structural Concrete for Building", unless otherwise specified herein. A copy of ACI 301-89 shall be kept in the Project Field office at all times.

1.4 SUBMITTALS

A. Laboratory Design Mix: Contractor shall submit testing laboratory prepared design mix using samples of aggregate to be used for the project. No concrete shall be placed until the Contractor has received written approval of the design mix from the Architect. Admixtures will not be permitted to be used if they have not been incorporated and tested in the accepted design mix. All laboratory freight costs shall be paid by the Contractor.
B. Concrete Compressive Tests: Submit copies of 7-day and 28-day concrete tests. All laboratory freight costs shall be paid by Contractor.
C. Evaluation: If the average 28-day compressive strength of cylinders for any concrete pour falls below the minimum specified, the concrete represented by such cylinders shall be considered questionable. At this time, the design mix shall be adjusted to produce the specified strength and the questionable concrete shall be subject to further testing at the expense of the Contractor. The additional tests shall be in accordance with ASTM C42. If core tests meet the specified strength, the results of the test cylinders will be waived. If core tests fail to meet specified strength, the concrete shall be removed and replaced at the Contractor's expense.

1.5 REFERENCE STANDARDS

A. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
B. ACI 305 - Recommended Practice for Hot Weather Concreting.
C. ACI 306 - Recommended Practice for Cold Weather Concreting.
D. ASTM C31 - Making and Curing Concrete Test Specimens in the Field.
E. ASTM C33 - Concrete Aggregates.
F. ASTM C94 - Ready-Mix Concrete.
G. ASTM C150 - Portland Cement.
H. ASTM C260 - Air Entraining Admixtures for Concrete
I. Fed. Spec. HH-F-341 - Fillers, Expansion Joint, Preformed, Un-extruded Bituminous (Asphalt and Tar) and Non-bituminous (Preformed for Concrete).

PART 2 – PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: Normal-Type I Portland type, ASTM C150.
B. Fine and Coarse Aggregates: ASTM C33.
   1. Maximum size of coarse aggregate as follows:
      Footings: 1 inch
      All other Concrete: 3/4" Limestone aggregate.
   2. Water: Clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious materials.
C. Contractor's option to supply Fly Ash; ASTM C 618, Class C or F maximum 15% by weight of Cementitious materials.

2.2 ADMIXTURES

A. Air Entrainment: ASTM C260.
B. Densifiers: ASTM C494.
   1. Retarding Densifiers: Plastiment, Silkamix 100 as manufactured by Silka Corp.; or PDA 25R Retarder as manufactured by Protex Industries; or Pozzolith Retarder (R) as manufactured by Master Builders; or equal.
   2. Acceleration Densifiers: Plastocrete, Silkamix 161HE as manufactured by Silka Corp.; or PDA Hi-Early 100 as manufactured by Protex Industries; or Pozzolith High Early (HE) as manufactured by Master Builders; or equal.

2.3 EXPANSION, CONTRACTION, AND CONSTRUCTION JOINTS

A. Expansion Joint Filler - Horizontal Joints in Concrete: Foam Expansion Joint Filler, 1/2" thickness; Cellu-Cushion EXP 200 as manufactured by Sealed Air or Expansion Joint as manufactured by Reflectix.
   1. Joint filler material shall have "tear-off" strips, where joint is intended to be filled with sealant.
   2. Joints must be primed as required by the sealant manufacturer.
B. Joint Sealer: Two-part self-leveling urethane sealant to meet requirements of Federal Specification TT-S-00227E, Type I, Class A; ASTM C-920.

2.4 CONCRETE MIX

A. Mix concrete in accordance with ASTM C94.
B. Provide concrete of following mix design:
   1. Footings, foundation walls, miscellaneous concrete:
      Compressive strength (28 days): 3000 psi
      Minimum cement content: 470 lb./cu. yd.
      Maximum water-cement ratio: 0.54 maximum
   2. Add air entraining agent to concrete mix for concrete work exposed to exterior. Air content six percent (6%), plus or minus 1 percent. Air entrained concrete used at other locations at Contractor's option, but less than three percent (3%).
C. Slump of Concrete:
   1. Vertical Surfaces: 1 inch to 3 inches
   2. Balance of Concrete: 2 inches to 4 inches
D. Use accelerating admixtures in cold weather only when accepted by the Architect. If accepted, use of admixtures will not relax cold weather placement requirements. Calcium chloride may be used only with written consent of Architect.
E. Use set-retarding admixtures during hot weather only when accepted by Architect.

PART 3 - EXECUTION

3.1 PLACING CONCRETE

A. Place concrete in accordance with ACI 304.
B. Notify Architect minimum of 24 hours prior to commencement of concreting operations.
C. Ensure anchors, seats, plates, and other items to be cast into concrete, (including electrical items), are placed, held securely, and will not cause hardship in placing concrete. Rectify same and proceed with Work.
D. Maintain records of poured concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.
E. Ensure reinforcements, inserts, embedded parts, formed expansions and contraction joints are not disturbed during concrete placement.
F. Prepare previously placed concrete by cleaning with steel brush and applying bond agent. Apply bonding agent in accordance with manufacturer's recommendations.
G. Poured concrete continuously between predetermined construction and control joints. Do not break or interrupt successive pours such that cold joints occur.
H. All construction joints shall be keyed and have reinforcing steel extend through the joints, unless detailed otherwise.
I. Place concrete as near as possible to its final position. Prevent segregation by use of chutes or tremies, as necessary. Maximum Free Drop: Four (4) feet. Compact during placing with internal vibrators, work around reinforcement and into form corners.
J. Cold weather concreting shall conform with ACI 306 and shall be implemented when temperatures of 40 degrees F or lower occur during placement and the early curing period.

3.2 JOINTS

A. Form joints in concrete work according to details and where indicated on Drawings. Place concrete in one monolithic pour between construction joints shown.
B. Construction Joints: Locate where indicated on drawings

3.3 JOINT SEALER

A. All expansion joints, construction joints, control joints, sawed longitudinal, and transverse joints shall be sealed with a material complying with Paragraph 2.4 of this Section.
B. Prime concrete surfaces to be sealed with sealant according to manufacturer's recommendations. Care should be taken to prevent excess primer from being applied outside of joint.
C. Air temperature shall be at least 40 degrees F when sealant is applied. Surfaces shall be thoroughly clean and dry. Mask joints, as necessary, to protect adjacent surfaces.
D. Apply sealants according to manufacturer's instructions. Remove masking tape before sealant has begun to thicken and set. Leave adjacent surfaces clean and free of sealant. Protect joint from dirt and traffic for 48 hours.

3.4 SCREEDING

A. Screed sidewalks on grade, maintaining surface flatness of maximum 1/8" variance in any 10-foot dimension and 1/16" variance per running foot.

3.5 PROTECTION

A. Beginning immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury. Maintain concrete with minimal moisture loss at relatively constant temperature for a period necessary for hydration of cement and hardening of concrete. Minimum period necessary for hydration shall be seven (7) days.
B. No storage of Project materials will be allowed at concrete areas which will remain exposed.
C. Protection of Concrete: Refer to Section 12.4 of ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched. Remove fins and other projections exceeding ACI 347R limits for class of surface specified.
B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.
   1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
   2. Do not apply rubbed finish to smooth-formed finish.
C. Related Unformed Surfaces: At horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING SLABS

A. Exterior Landings: Light steel trowel finish, followed by transverse brooming, to provide a non-slip finish. Finish with Class "B" tolerances.
B. Balance of Concrete: Smooth form finish.

3.8 CURING

A. Formed Concrete Surfaces: If forms are loosened and remain during curing period: the concrete shall be cured until the end of the seven (7) day period by continuous sprinkling or fabric kept continuously wet.
B. All Other Locations, (including formed concrete surfaces, if forms are removed during curing period): Liquid membrane curing compound applied as per manufacturer's recommendations.

3.9 NON-CONFORMING WORK

A. Defective Concrete: Repair and patch defective areas as approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect’s approval.
B. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part Portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
C. Repairing Formed Surfaces: Surface defects include texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by the Architect.
D. Repairing Un-formed Surfaces: Test un-formed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01-inch-wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
5. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

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

END OF SECTION

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SECTION 31 10 00

SITE CLEARING

RFB #923904-01

PART 1- GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.2 SUMMARY

A. This section includes the following:
   1. Protection of existing trees.
   2. Removal of Trees and other Vegetation.
   3. Clearing and Grubbing.
   4. Removing above-grade improvement.
   5. Removing below grade improvements.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Section 31 20 00 Earthwork

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specifications Section.
B. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work.

1.5 PROJECT CONDITIONS

A. Traffic: Conduct site demolition operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Coordinate all work with the District.
B. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering trees by stockpiling construction materials or excavated materials with drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary fencing to protect trees and vegetation.
C. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
D. Environmental Controls: Comply with governing regulations pertaining to environmental protection.
   1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
   2. If unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure both nature and extent of conflict. Submit report to Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.
   3. Salvageable Improvements: Carefully remove items indicated to be salvaged, and store on owner's premises where indicated or directed.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

A. General: Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
B. Demolition work shall include the demolition, removal and legal disposal of existing construction debris as required to accommodate the new construction. The Contractor shall take care to prevent damages to existing utilities, construction and materials not scheduled for demolition, repair or replacement, and shall repair damages to the construction and materials to the satisfaction of the Architect and at no additional cost to the Owner.
C. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction. Do not use water for dust control if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris.
D. Whenever possible, all features demolished shall be salvaged or recycled in lieu of being disposed of as waste in a landfill. Existing features to be demolished which are not salvageable or reused, shall become the property of the Contractor and shall be removed from project site.
E. Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Provide temporary traffic control in accordance with MUTCD.
F. Protect existing work that is to remain in place, be reused, or remain the property of the Owner. At no additional expense to the Owner, repair all items that are damaged during performance of the work to their original condition, or replace with new. Do not overload pavements to remain.
G. Make the maximum use of low-noise emission products, as certified by the EPA.
H. Saw cut full depth along perimeter of pavement to be removed. Remove to nearby existing pavement joints when possible. Do not leave panel of parking lot and drive panels less than six feet wide. Do not leave panels of sidewalk pavement less than four feet wide.

3.2 SITE CLEARING

A. General: Remove trees, shrubs, grass, and other vegetation, improvements or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated.
    1. Removal includes digging out and off-site disposing of stumps and roots.
    2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.
B. Clearing and Grubbing: Clear sites of trees, shrubs and other vegetation, except those indicated to be left standing.
C. Completely remove stumps, roots, and other debris protruding through ground surface.
    1. Use only hand methods for grubbing inside drip line of trees indicated to remain.
    2. Fill depressions caused by clearing and grubbing operations with satisfactory soil materials, unless further excavation of earthwork is indicated.
        a. Compact fill material in accordance with requirements of Section 31 20 00 - Earthwork.
D. Removal of Improvements: Remove existing above-grade and below-grade improvements as indicated on drawings.

3.3 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose of off site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.
2. Burning of removed materials is not permitted on project site.

3.4 CLEAN UP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections:
   1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start of operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

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SECTION 31 20 00

EARTHWORK

RFB #923904-01

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Extent of Earthwork is indicated on Drawings
B. Work includes:
   1. Stripping, topsoil stockpiling
   2. Excavation
   3. Fill
   4. Compaction
   5. Preparation of subgrade for walls, parking and drives, and steps and walks.
   6. Grading.
   7. Topsoil placement.
   8. Finish grading.
   9. Erosion control.
   10. Import of embankment material.
   11. Export of excess and unsuitable material.

1.2 RELATED SECTIONS

A. Section 31 10 00: Site Clearing.
B. Section 31 22 00: Grading.
C. Section 31 23 23: Fill.
D. Section 31 23 23: Excavation.

1.3 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the Work are as indicated.
B. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
C. The Contractor shall supply all construction layout staking for this project, including for exterior improvements and utilities. Engineer will supply geometric information for purposes of staking upon request. Contractor shall give Engineer 48-hour notice per request for said information.
D. Soil Borings:
   1. Test borings and other exploratory operations may be made by Contractor at no cost to Owner with Owner approval.
E. Existing Utilities:
   1. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
   2. Underground utilities shown on the drawings have been taken from existing public records, Owner's records and available as-built drawings and are correct to the best of our knowledge and provided for information only.
   3. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities caused by Contractor's negligence to the satisfaction of utility owner at no cost to the Project Owner.
   4. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.

5. Provide minimum of 48-hour notice to Owner and Engineer and receive written notice to proceed before interrupting any utility.
6. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

1.4 PROTECTION OF PERSONS AND PROPERTY

A. Barricade open excavations occurring as part of this work and post with warning lights.
B. Operate warning lights as recommended by authorities having jurisdiction.
C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

1.5 QUALITY ASSURANCE

A. Codes and Standards:
   1. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
   2. The entire installation shall fully comply with all local and state laws and ordinances, and with all established codes applicable thereto.
B. Testing and Inspection Service:
   1. Cost of field and laboratory testing will be borne by the Contractor. Testing by laboratory approved by the Owner.
   2. Contractor will cooperate with testing laboratory and geotechnical Engineer in coordinating compaction testing, installation and protection of settlement monitoring devices.

1.6 SUBMITTALS

A. Testing Reports - Excavating: Submit the following reports directly to the Architect from the testing services, with copies to the Contractor and the Owner
   1. Test reports on borrow material/lab analysis of fill materials.
   2. Field density test reports.
   3. One optimum moisture-maximum density curve for each type of soil encountered.
   4. Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS/ DEFINITIONS

A. Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups CL, GC, GW, CP, GM, ML, SC, SM, SW, and SP.
B. Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups MG, DH, OL, OH, PT and any bedrock material.
C. Subbase material (granular fill): Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.
D. Fill materials:
   1. The fill material type shall be cohesive, non-expansive soil having a "CL" or "CL-ML" classification in accordance with the Unified Soil Classification System and shall have a maximum laboratory dry density (100%) of 100 pounds per cubic foot or more as determined by ASTM D698 (Standard Proctor).
   2. No organic dark colored soils or plastic and potentially expansive soils, such as clay shale, are considered suitable engineered fill materials. Topsoils should be sorted and stockpiled for landscaping purposes.

3. When fill material includes rock, the maximum rock size acceptable shall be three inches (3"). No large rocks shall be allowed to nest and all voids must be carefully filled with small stones or earth, properly compacted. No large rocks will be permitted within twelve inches (12") of the finished grade.

E. Topsoil: Secure and stockpile from naturally well drained areas during stripping operations; use satisfactory soil materials free of admixture of subsoil, reasonably free from clay lumps, stone or other debris a greater than 1-1/2" in diameter.

F. Erosion Fence: Three (3) foot wide, 10 mil, 100 percent spunbonded nylon reinforced silt fence fabric with a maximum vertical water flow of 500 gallons per minute per square foot. Posts shall be steel T posts, minimum length 5 foot.

G. Straw Bales: Bound, rectangular, straw bales and suitable stakes. Straw bales to be in good condition. Loose, broken or deteriorated bales will not be accepted.

PART 3 – EXECUTION

3.1 EXCAVATION

A. Excavation is unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.

B. Unauthorized Excavation:
   1. Consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer.
   2. Unauthorized excavation, as well as remedial work directed by Engineer shall be at Contractor's expense.
   3. Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.

C. Additional Excavation:
   1. When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions. Engineer shall evaluate and advise if bearing material is suitable and shall provide unconfined compressive strength tests.
   2. If unsuitable bearing materials are encountered at required elevations, carry excavations deeper and replace excavated material with engineered compacted backfill as directed by Engineer.
   3. Unsuitable soil shall be removed to the dimension and grade as directed by the Engineer. This area shall be refilled with compacted crushed stone to 98 percent standard proctor D698 (70 percent relative density D2049).
   4. Removal or reworking of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

D. Stability of Excavations:
   1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction.
   2. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
   3. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

E. Dewatering:
   1. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
   2. Do not allow water to accumulate in excavations.
   3. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations.
   4. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
   5. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas.

6. Do not use trench excavations as temporary drainage ditches.

F. Material Storage:
   1. Stockpile satisfactory excavated materials where directed, until required for backfill or fill.
   2. Place, grade and shape stockpiles for proper drainage.
   3. Locate and retain soil materials away from edge of excavations.
   4. Do not store within drip line of trees indicated to remain.
   5. Dispose of excess soil material and waste materials as herein specified.

G. Subgrade Preparation: Pavements (Parking and Roadways and Sidewalks):
   1. Provide a 12" compacted depth subgrade for Parking and Roadways including crushed rock surfaces, 6-inches for Sidewalks.
   2. Scarify, mix and recompact materials to provide uniform composition at least 12" below top of subgrade for parking lots and drives and 6" below top of subgrade for sidewalks for full width of subgrade plus 2'-0" each side of parking lots and drives and 1'-0" on each side of sidewalks.
   3. Construct 12" thick uniform subgrade by excavating top 6" of subgrade, scarifying, mixing, and recompacting next 6" of subgrade base and proof rolling.
   4. Construct 6" thick uniform subgrade (sidewalks) by scarifying, mixing, and recompacting the top 6" of subgrade.
   5. Proof roll existing soils prior to placing fill to determine location of unsuitable bearing materials. Proof roll with heavy rubber-tired construction equipment in the presence of the Geotechnical Engineer. Unsuitable material encountered in the subgrade base shall be over excavated and replaced with suitable material and re-compacted. Notify Engineer if unsuitable conditions are encountered for direction.
   6. Compact as per Paragraph 3.2 Compaction requirements.

3.2 COMPACTION

A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.

B. Compaction Requirements: Compaction shall be not less than the following percentages of maximum dry density:

Standard Proctor ASTM D698 Construction Type	Cohesive Soils
Paving, roadway, Parking lot and critical backfill area beneath same; e.g. trenches	95%
Backfill adjacent to structures not supporting other structures- minor subsidence possible.	95%
Lawn areas. Non-critical areas- moderate subsidence possible.	90%

*Use relative density technique (ASTM D4253 and D4254) where standard proctor technique (ASTM D698) does not result in a definable maximum dry density and optimum moisture content.

C. Moisture Control and Content:
   1. When subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
   2. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

D. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

E. Protect The fill material shall be compacted at a moisture content typically within a range of minus two percent to plus four percent (0% to +4%) of optimum moisture content as determined by ASTM D698 (Standard Proctor). Other acceptable moisture content ranges determined by the Engineer may be necessary to produce desirable results with specific soils.

3.3 BACKFILL AND FILL

A. General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
   1. In excavations, use satisfactory excavated or borrow material.
   2. Under grassed areas, use satisfactory excavated or borrow material.
   3. Under walks and pavements, use subbase material, or satisfactory excavated or borrow material, or combination of both.
   4. Under steps, use subbase material.
   5. Under piping and conduit, use subbase material where subbase is indicated under piping or conduit; shape to fit bottom 90 degrees of cylinder.
   6. Utilize loess soil for fill only in the lower portion of deep fill sections or below frost depth under pavement/structures.

B. Ground Surface Preparation:
   1. Clearing area to be filled: All timber, logs, trees, brush and rubbish shall be removed, piled or burned or otherwise acceptably disposed of.
   2. Scarifying area to be filled:
      a. All vegetable matter and dark colored organic soil shall be removed from the surface upon which the fill is to be placed, and the surface shall then be plowed or scarified to a depth of at least six inches and until the surface is free from ruts, hummocks or other uneven features which would tend to prevent uniform compaction by the equipment to be used.
      b. Where fills are made on hillsides or slopes, the slope of the original ground upon which the fill is to be placed shall be plowed or scarified deeply or where the slope ratio of the original ground is steeper than 5 horizontals to 1 vertical, the bank shall be stepped or benched. Ground slopes which are flatter than 5 to 1 shall be benched when considered necessary by the Engineer.
   3. Compaction area to be filled: After the foundation for the fill has been cleared and plowed or scarified, it shall be disced or bladed until it is uniform and free from large clods, brought to within the specified moisture content range and compacted to not less than ninety-five percent (95%) of maximum dry density in accordance with current ASTM D698 (Standard Proctor).

C. Placement and Compaction:
   1. Depth and Mixing of Fill Layers: The selected fill material shall be placed in level, uniform layers which, when compacted, shall have a density conforming to a minimum of ninety-five percent (95%) of maximum dry density in accordance with ASTM D698 (Standard Proctor). Each layer shall be thoroughly blade mixed during the spreading to insure uniformity of material in each layer. Compacted layer thickness will be compatible with the demonstrated compatibility of the compaction equipment being used, with a compacted layer thickness of 6" considered typical.
   2. Amount of Compaction: After each layer (lift) has been placed, mixed and spread evenly, it shall be thoroughly compacted to a minimum of ninety-five percent (95%) of the material's

maximum dry density as determined by ASTM D698 (Standard Proctor) for areas supporting building foundations and floor slabs. Grassed areas or areas not supporting buildings or slabs-on-grade should be compacted to a minimum of ninety percent (90%).

3. Compaction of Fill Layer: Compaction equipment shall be of such design to be able to compact the fill to the specified density. Compaction shall be accomplished while the fill material is within the specified moisture content range. Compaction of each layer shall be continuous over its entire area and the compaction equipment shall make sufficient trips to ensure that the required density has been obtained.
4. Compaction of Slopes: Fill slopes shall be compacted. Compacting operations shall be continued until the slopes are stable but not too dense for planting on the slopes. Compacting of the slopes may be done progressively in increments of three to five feet (3' to 5') in fill height or after the fill is brought to its total height.
5. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

3.4 GRADING

A. General:
   1. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas.
   2. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
B. Grading Outside Paving Lines:
   1. Grade areas to adjacent to paving lines to drain away from structures and to prevent ponding.
   2. Finish surfaces free from irregular surface changes, and as follows:
      a. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.
      b. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.
C. Grading Surface of Fill Under Paving:
   1. Grade smooth and even, free of voids, compacted as specified, and to required elevation.
   2. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.5 EMBANKMENTS

A. General: Prepare site, place and compact excavated materials to required elevation and cross section.
B. Construction:
   1. Construct embankment in horizontal layers not more than 6" in loose thickness.
   2. Deposit each layer over full width of embankment as separate and distinct operation.
   3. After layer is deposited, smooth to uniform depth by means of suitable motor patrol or bulldozer.
   4. Compact layer by rolling with tamping type roller until full weight of roller is supported by tamping feet, but with not less than one pass per inch of loose thickness of layer.
   5. Roller will be considered to be supported entirely on its tamping feet when feet do not penetrate more than 3" into material being compacted.
   6. If soil is wet so that it will not sufficiently compact by one passing of roller per inch of loose thickness, provide one discing per 2" of loose thickness.
      a. Cut and stir full depth of layer.
      b. Allow interval of not longer than two hours between successive discings, or as directed by Engineer.
      c. After discing is completed compact layer by specified rolling.

7. If soil is dry so that it will not satisfactorily compact by rolling, moisten material before compaction; manipulate material to secure proper distribution of moisture before compaction.
8. Whenever operations are suspended during periods rain is likely to occur, smooth and compact surface to shed water readily.
9. Compact to not less than 95% maximum density with moisture content not more than three percentage points above or below optimum; maximum density determined by ASTM D698.

3.6 TOPSOIL SPREADING

See Section 31 22 00 - Grading

3.7 FINISH GRADING

See Section 31 22 00 - Grading

3.8 MAINTENANCE

A. Protection of Graded Areas:
   1. Newly graded areas from traffic and erosion. Keep free of trash and debris.
   2. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
   3. Keep public streets clean from soil, soil tracking and debris at all times.
B. Reconditioning Compacted Areas: Where completed graded areas are disturbed by subsequent construction operations, erosion or adverse weather, scarify surface, re-shape and compact to required density prior to further construction.
C. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work and eliminate evidence of restoration to greatest extent possible.

3.9 EROSION PROTECTION

A. The Contractor shall comply with soil erosion control requirements of the Iowa Code, and the local ordinances. The Contractor shall take all necessary measurements to protect against erosion and dust pollution on this project site and all off-site borrow or deposit areas, during performance or as a result of performance.
B. The Contractor shall take all steps necessary to protect adjoining property, including public sanitary and storm drainage systems and streets, from any damage resulting from the movement of earth or other debris thereto from the site; and such steps as are necessary to prevent the accumulation of earth or debris on adjoining public or private property from the construction site. The Contractor shall take into consideration all factors which might cause the movement of earth or debris from the construction site onto any adjoining public or private property.
C. The Contractor shall take immediate corrective action should damage occur to adjoining public or private property (including sanitary or storm drainage systems and streets). The Contractor shall take immediate corrective action to remove any debris should any earth or other debris move from the construction site to adjoining public or private property. Further, the Contractor shall take steps required to prevent the repetition of any instance where dirt or other debris moves from the construction site to adjoining public or private property.
D. The Contractor will hold the Owner harmless from any and all claims of any type whatsoever resulting from damages to adjoining public or private property, including reasonable attorney's fees incurred to Owner. Further, if the Contractor fails to take necessary steps to promptly remove earth or debris which comes onto adjoining public or private property, the Owner may, but need not, remove such debris and deduct the cost thereof from amounts due the Contractor.

E. The Contractor shall maintain storm sewer systems throughout construction and provide erosion control measures acceptable to protect against siltation and erosion or any adverse conditions resulting from storm water. Use straw bales and other means at all intakes and outfall structures and at all locations where erosion or siltation is anticipated or occurring; including drainage courses and swales.
F. Silt fences shall be installed as shown on drawings, in locations as directed by Engineer, and in locations as required by Contractors erosion control plan.
   1. Drive T-posts 5' O.C. in drainage swales, 8' O.C. for slope control, to a minimum depth of 2 1/2'. Attach fabric to posts with continuous cord or wire. Bury 12" of fabric in continuous trench in front of posts.
   2. Contractor to routinely inspect condition of fences and repair and clean, as necessary to maintain them in good working order.
   3. After vegetative cover is established, silt fences will be removed by Contractor and disposed of off site.
G. In lieu of silt fences, straw bale dikes may be installed with the approval of the Engineer. Contractor shall furnish a detail of the dike for approval to the Engineer. Contractor shall routinely inspect the conditions of the straw bales and replace damaged bales or dikes as necessary. Periodic cleaning of sediment and removal of straw bale dikes shall conform to similar requirements for silt fences.

3.10 FIELD QUALITY CONTROL

A. Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.
B. Perform field density tests in accordance with ASTM D2922 (nuclear method) or ASTM D1556 (sand cone method), as applicable.
C. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test every 50 lineal feet to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Engineer.
D. Paved Areas and Building Slab Subgrade: Make at least one field density test of subgrade for every 2000 sq. ft. of paved area, but in no case less than 3 tests. In each compacted fill layer, make one field density test for every 2000 sq. ft. of overlaying building slab or paved area, but in no case less than 3 tests.
E. If, in opinion of Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

3.11 NATURAL AND ARTIFICAL DRAINAGE

A. If necessary during the progress of the work to interrupt the natural drainage of the surface water, Contractor shall provide approved temporary drainage facilities.
B. All excess excavation shall be removed from site to location determined by Contractor.

3.12 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash and debris from site to an approved location for disposal by Contractor.
B. All excess excavation shall be removed from site to location determined by Contractor.

END OF SECTION

SECTION 31 22 00

GRADING

RFB #923904-01

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Rough grading and finish grading the site for site structures and pavements.

1.2 RELATED SECTIONS

A. Section 31 23 16, Excavation.
B. Section 31 23 23, Fill.
C. Section 31 20 00, Earthwork

1.3 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.
B. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.
C. The Contractor shall supply all construction layout staking for this project, including for exterior improvements and utilities. Engineer will supply geometric information for purposes of staking upon request. Contractor shall give Engineer 48-hour notice per request for said information.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil: See Section 31 23 23 Non-Building Fill.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum.
B. Stake and flag locations of known utilities.

3.3 ROUGH GRADING

A. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
B. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.4 SOIL REMOVAL

A. Stockpile topsoil to be re-used on site; remove remainder from site.
B. Stockpile subsoil to be re-used on site; remove remainder from site.

3.5 FINISH GRADING

A. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size. Remove soil contaminated with petroleum products.
B. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches (75 mm).
C. Place topsoil to nominal depth of 6 inches (150 mm).
D. Remove roots, weeds, rocks, and foreign material while spreading.
E. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

3.6 CLEANING AND PROTECTION

A. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 23 16

EXCAVATION

RFB #923904-01

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Excavating for building volume below grade, footings, slabs-on-grade, site structures, and utilities within the building.

1.2 RELATED SECTIONS

A. Section 31 22 00, Grading.
B. Section 31 23 23, Fill.
C. Section 31 20 00, Earthwork.

1.3 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the Work are as indicated.
B. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
C. The Contractor shall supply all construction layout staking for this project, including for exterior improvements and utilities. Engineer will supply geometric information for purposes of staking upon request. Contractor shall give Engineer 48-hour notice per request for said information.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum locations.
B. Locate, identify, and protect utilities that remain and protect from damage.

3.2 EXCAVATING

A. Excavate to accommodate new structures and construction operations.
B. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
C. Slope banks of excavations deeper than 4 feet (1.2 meters) to angle of repose or less until shored.
D. Do not interfere with 45 degree bearing splay of foundations.
E. Cut utility trenches wide enough to allow inspection of installed utilities.
F. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; See Section 31 23 23.
G. Grade top perimeter of excavation to prevent surface water from draining into excavation.
H. Remove excavated material that is unsuitable for re-use from site.
I. Remove excess excavated material from site.

3.3 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

SECTION 31 23 23

FILL

RFB #923904-01

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Filling, backfilling, and compacting for building volume below grade, footings, slabs-on-grade, and paving.
B. Backfilling and compacting for utilities outside the building to utility main connections.

1.2 RELATED SECTIONS

A. Section 31 22 00, Grading.
B. Section 31 23 16, Excavation.
C. Section 31 20 00, Earthwork.

1.3 REFERENCES

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2001 (2004).
B. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2000a.
C. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2000.
D. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2002.
E. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 1994(R 2001).
F. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.
G. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.4 PROJECT CONDITIONS

A. Verify that survey bench marks and intended elevations for the Work are as indicated.
B. The Contractor shall supply all construction layout staking for this project, including for exterior improvements and utilities. Engineer will supply geometric information for purposes of staking upon request. Contractor shall give Engineer 48-hour notice per request for said information.

PART 2 – PRODUCTS

2.1 FILL MATERIALS

A. General Fill - Fill Type Landscaped Areas: Subsoil excavated on-site.
   1. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), and debris.
B. Structural Fill - Fill Type Paved Areas: Subsoil excavated on-site.
   1. Free of lumps larger than 3 inches (75 mm), rocks larger than 2 inches (50 mm), and debris.
C. Topsoil - Fill Type Landscaped Areas: Topsoil excavated on-site.

1. Free of roots, rocks larger than 1/2 inch (12 mm), subsoil, debris, large weeds and foreign matter.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

3.2 PREPARATION

A. Scarify subgrade surface to a depth of 6 inches (150 mm) under concrete paving.
B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Structural Fill.
C. Compact subgrade to 95 percent of maximum dry density.
D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.3 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.
B. Employ a placement method that does not disturb or damage other work.
C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
D. Maintain optimum moisture content of fill materials to attain required compaction density.
E. Slope grade away from building minimum 2 inches in 10 ft (50 mm in 3 m), unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
F. Correct areas that are over-excavated.
   1. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.
G. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving, slabs-on-grade, and similar construction: 95 percent of maximum dry density.
   2. At other locations: 95 percent of maximum dry density.
H. Reshape and re-compact fills subjected to vehicular traffic.

3.4 FIELD QUALITY CONTROL

A. Compaction density testing will be performed on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.
B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D 1557 ("modified Proctor"), or AASHTO T 180.
C. If tests indicate work does not meet specified requirements, remove work, replace and retest at Contractor's expense.
D. Owner will select and pay for independent testing laboratory and Contractor shall coordinate work with testing laboratory before proceeding with each phase or stage of work.

3.5 CLEAN-UP

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 31 23 33

TRENCHING AND BACKFILLING

RFB #923904-01

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Trench excavation for pipe systems, manholes, intakes and other structures.
B. Trench bedding and foundation stabilization.
C. Pipe and structure placement and backfill.

1.02 DESCRIPTION OF WORK

A. Perform all excavations required to complete the work shown on the plans.
B. Prepare trench excavations and shoring for new work, and install the utility lines, structures, and system components, including bedding and foundation stabilization.
C. Complete specified backfill operation.
D. Reference is made to the Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2001, and all current General Supplemental Specifications and Materials Instructional Memorandum by the term "Iowa DOT Specifications" and/or "Iowa DOT I.M."

1.03 SUBMITTALS

A. Submit under provisions of Division 1.
B. Results of Proctor and In-Place Density Tests on backfill.
C. Contractor will provide Material Certifications to the Engineer.

1.04 SUBSTITUTIONS

A. Use only materials conforming to these specifications unless permitted otherwise by Engineer.
B. Obtain approval of Engineer for all substitutions prior to use.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver only materials that fully conform to these specifications or for which submittals have been provided to Engineer and approved for use.
B. Store delivered materials and excavated materials in locations that will not interfere with operations and minimize environmental damage.
C. Grade and shape stockpiles for drainage and protect adjacent areas from runoff. Provide erosion control around stockpiles.
D. Remove unsuitable and excess materials from the site.

1.06 SCHEDULING AND CONFLICTS

A. Construction Sequence:
   1. Attend a preconstruction meeting if required by Engineer.
   2. Submit plan for construction sequence and schedule prior to commencing construction.
B. Conflict Avoidance:
   1. Expose possible conflicts in advance of construction, such as utility lines and drainage structures. Verify elevations and locations of each and verify clearance for proposed construction.

2. Complete other elements of the work that can affect line and grade in advance of other open cut construction unless noted on the plans.
3. Notify Engineer of conflicts discovered or changes needed to accommodate unknown or changed conditions.

1.07 SPECIAL REQUIREMENTS

A. Stop Work: Stop work and notify Engineer immediately if contaminated soils, historical artifacts, or other environmental or historic items are encountered.
B. Conform to local, state, and federal requirements.
C. Abandoned Utilities: Remove and dispose of abandoned utility lines including gas mains, water mains, sewer mains, telephone conduits, service lines, etc. required to complete the work. Said work shall be incidental to the project unless otherwise specified.

PART 2 - PRODUCTS

2.01 EXCAVATED MATERIALS

A. Unclassified Excavation: Excavation of all materials encountered, except rock and over-excavation.
B. Rock Excavation: Boulders or sedimentary deposits that cannot be removed without continuous use of pneumatic tools or blasting.
C. Over-excavation: Excavation of soil or rock in trenches below the pipe zone.
D. Suitable Excavated Materials for Backfill:
   1. Soil, clay, silt, sand, and gravel with moisture content suitable to achieve required compaction. ASTM D 2321, Class II through IVA (see 2.01, E).
   2. Fine-grained soils according to ASTM D 2321 Class IVB (inorganic) (see 2.01, E) may be used in the final backfill upon approval of the Engineer.
   3. Adjust moisture content of excessively wet, but otherwise acceptable, material by spreading, turning, aerating, and otherwise working material as necessary to achieve required moisture range.
   4. Adjust moisture content of excessively dry, but otherwise acceptable material by adding water, then turning, mixing, and otherwise blending the water uniformly throughout the material until the required moisture range is achieved.
   5. Lime or fly ash may be added to soils to produce a suitable backfill material. Uniformly mix soil and additive. Determine Standard Proctor maximum density and optimum moisture content of the modified material. Amount of additive applied is subject to Engineer's approval.
E. Non-Manufactured (Excavated) Backfill Materials: (See Sections 2.03 and 2.04 for manufactured backfill)

Class	Type	Soil Group Symbol D 2487	Description	Percentage Passing Sieve Sizes			Atterberg Limits		Coefficients	
				1½ in. (40 mm)	No. 4 (4.75 mm)	No. 200 (0.075 mm)	LL	PI	Uniformity C_u	Curvature C_c
II	Coarse-Grained Soils, clean	GW	Well-graded gravels and gravel-sand mixtures; little or no fines	100%	‹50% of "Course Fraction"	‹5%	Non Plastic		›4	1 to 3
		GP	Poorly-graded gravels and gravel-sand						‹4	‹1 or ›3

			mixtures; little or no fines.							
		SW	Well-graded sands and gravelly sands; little or no fines.		›50% of “Coarse Fraction”				›6	1 to 3
		SP	Poorly-graded sands and gravelly sands; little or no fines.						‹6	‹1 or ›3
	Coarse-Grained Soils, borderline clean to w/fines	e.g. GW-GC, SP-SM	Sands and gravels which are borderline between clean and with fines.	100%	Varies	5% to 12%	Non Plastic		Same as for GW, GP, SW and SP	
III	Coarse-Grained Soils, with Fines	GM	Silty gravels, gravel-sand-silt mixtures.	100%	‹50% of “Coarse Fraction”	12% to 50%		‹4 or ‹”A” Line		
		GC	Clayey gravels, gravel-sand-clay mixtures.					‹7 and ›”A” Line		
		SM	Silty sands, sand-silt mixtures.		›50% of “Coarse Fraction”			›4 or ‹”A” Line		
		SC	Clayey sands, sand-clay mixtures.					›7 and ›”A” Line		
IVA	Fine-Grained Soils (inorganic)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, silts with slight plasticity.	100%	100%	›50%	‹50	‹4 or ‹”A” Line		
		CL	Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clay, lean clays.					›7 and ›”A” Line		
IVB (1)	Fine-Grained Soils (inorganic)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	100%	100%	›50%	›50	‹”A” Line		
		CH	Inorganic clays of high plasticity, fat clays.					›”A” Line		
V	Organic Soils (Unsuitable for backfill)	OL	Organic silts and organic silty clays of low plasticity.	100%	100%	›50%	‹50	‹4 or ‹”A” Line		
		OH	Organic Clays of Medium to high plasticity, organic silts.				›50	‹”A” Line		
	Highly Organic (Unsuitable for backfill)	PT	Peat and other high organic soils.							

(1) See section 2.01, F, 2 for restrictive use.

F. Unsuitable Material: Remove unsuitable materials from the site, including, but not limited to, the following:
   1. Rock with gradation not meeting the stated gradation for stabilization material.
   2. Individual stones or concrete chunks larger than 6 inches and averaging more than one per each cubic foot of soil.
   3. Frozen materials.
   4. Stumps, logs, branches, and brush.
   5. Trash, metal, or construction waste.
   6. Soil in clumps or clods larger than 6 inches, and without sufficient fine materials to fill voids during placement.
   7. Unsuitable soils, as defined in Section 2010, 2.03, excluding material used as topsoil.
   8. Class V Material (ASTM D 2321), as defined in Section 3010, 2.08.
   9. Environmentally-contaminated soils.

G. Replacement of Unsuitable Soils:
   1. If the excavated material is determined by the Engineer to be unsuitable and cannot be conditioned so that it becomes suitable, furnish all necessary backfill material.
   2. Remove and dispose of unsuitable material from the site.

2.02 STABILIZATION (FOUNDATION) MATERIALS

A. Clean 2-1/2 inch crushed stone or crushed portland cement concrete (PCC) material, with the following gradation:

Sieve	Percent Passing
2-1/2”	100
2”	90 to 100
1-1/2”	35 to 70
1”	0 to 15
1/2”	0 to 5

B. Engineer may authorize a change in gradation subject to materials available locally at time of construction. Subject to the Engineer’s approval, crushed concrete may be used if it is within plus or minus 5% of the gradation for each size of material.

2.03 CLASS I GRANULAR BEDDING AND BACKFILL MATERIAL (Storm Sewers and Sanitary Sewers)

A. Use gravel or crushed stone for granular bedding, complying with the following gradation:

Sieve	Percent Passing
1-1/2”	100
1”	95 to 100
1/2"	25 to 60
No. 4	0 to 10
No. 8	0 to 5

Note: Engineer may authorize the use of crushed PCC, for pipe sizes up to 12 inches, or a change in gradation subject to materials available locally at time of construction.

B. Compaction: See Section 3.06.

2.04 CLASS II BACKFILL MATERIAL (Storm Sewers, Sanitary Sewers, and Water Mains)

A. Class II material is manufactured and non-manufactured open graded (clean) or dense graded (clean) processed aggregate, clean sand, or coarse-grained natural soils (clean) with little or no fines.
B. Class II material is non-plastic soil less than 1-1/2 inches in size and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
GW	Well-graded gravels and gravel-sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	Where hydraulic gradient exists check gradation to minimize migration. Clean groups suitable for use as drainage blanket and underdrain.
GP	Poorly graded gravels and gravel sand mixtures, little or no fines. 50% or more retained on No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	
SW	Well-graded sands and gravelly sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	
SP	Poorly graded sands and gravelly sands, little or no fines. More than 50% passes No. 4 sieve. More than 95% retained on No. 200 sieve. Clean.	

C. Compaction: See Section 3.06.
D. Class II material may be specified in the contract documents by the Engineer between the pipe embedment zone and the top 2 feet of final backfill when the trench is under the pavement.

2.05 CLASS III BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer, and Water Mains)

A. Class III material is natural coarse-grained soils with fines.
B. Class III material follows Section 2.01, G and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
GM	Silty gravels, gravel-sand-silt mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve.	Do not use where water condition in trench may cause instability.
GC	Clayey gravels, gravel-sand-clay mixtures. 50% or more retained on No. 4 sieve. More than 50% retained on No. 200 sieve.	
SM	Silty sands, sand-silt mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.	
SC	Clayey sands, sand-clay mixtures. More than 50% passes No. 4 sieve. More than 50% retained on No. 200 sieve.	

C. Compaction: See Section 3.06.

2.06 CLASS IVA BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer, and Water Mains)

A. Class IVA material is natural fine grained inorganic soils.
B. Class IVA material follows Section 2.01, G and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
ML	Inorganic silts, very fine sands, rockflous, silty or clayey fine sands. Liquid limit 50% or less. 50% or more passes No. 200 sieve.	Obtain geotechnical evaluation of proposed material. May not be suitable under deep fills, surface applied wheel loads, and under heavy vibratory compactors and tampers. Do not use where water conditions in trench may cause instability.
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. Liquid limit 50% or less. 50% or more passes No. 200 sieve.	

C. Compaction: See Section 3010, 3.06.
D. Suitable only in dry trench conditions.

2.07 CLASS IVB BACKFILL MATERIAL (Storm Sewer, Sanitary Sewer and Water Mains)

A. Class IVB material is natural fine-grained inorganic (high elastic silts and plastic clays - fat clay) with a liquid limit greater than 50%.
B. Class IVB material follows Section 3010, 2.01 and consists of the following:

SOIL TYPE	DESCRIPTION OF MATERIAL CLASSIFICATION	REMARKS SECTION
MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.	Not to be used in pipe embedment zone.
CH	Inorganic clays of high plasticity, fat clays. Liquid limit greater than 50%. 50% or more passes No. 200 sieve.	

C. Compaction: See Section 3.06.
D. When approved by the Engineer, Class IVB material may be used as final trench backfill in a dry trench.
E. Do not use in the pipe embedment zone.

2.08 CLASS V BACKFILL MATERIAL (Topsoil)

A. Class V Material is natural highly organic soils with a liquid limit greater than 50%. See Section 2.01.
B. Use Class V Material only as topsoil outside of the pavement, unless otherwise specified or allowed by the Engineer.
C. Do not use Class V Material in the pipe embedment zone.

2.09 BEDDING AND BACKFILL MATERIALS FOR PIPE CULVERTS

A. Bedding:
   1. Use minimum Type C embedment.
   2. Install water stop or curtain wall at culvert inlet, as specified in the contract documents.
B. Backfill Material:
   1. Use all suitable material excavated for pipe culvert work, as specified in Section 2.01, for backfill material.
   2. Dry suitable material that has excessive moisture prior to placement.
   3. Remove unsuitable material, as specified in Section 2.01, from the project site.

2.10 BEDDING AND BACKFILL MATERIALS FOR SUBDRAINS

A. Drainable Bedding and Backfill Materials Include:
   1. Porous backfill material.
   2. Pea gravel.
   3. Use as shown on the plans or on the detailed drawings.
B. Porous Backfill Material:
   1. Crushed stone or gravel with the following gradation:

Sieve	Percent Passing
3/4"	100
1/2"	95 to 100
3/8"	50 to 100
No. 4	10 to 50
No. 8	0 to 8

Iowa DOT Gradation No. 29.

C. Coarse Aggregate: Use Stabilization Materials, per Section 3010.
D. Pea Gravel: Use commercially available pea gravel.
E. Impervious Bedding: Use least permeable on-site materials.
F. Engineering Fabric: Use Iowa DOT 4196.

2.11 SPECIAL PIPE EMBEDMENT MATERIAL

A. Concrete Supports: Where specified in the contract documents, construct concrete support systems.
B. Concrete Bedding, Arch, or Encasement:
   1. Concrete: commercial, 4,000 psi compressive strength.
   2. Unreinforced, unless otherwise shown on the plans.
   3. Minimum concrete thickness: 6 inches or as shown on the plans.
C. Flowable Mortar:
   1. Approximate quantities per cubic yard:
      a. Cement 100 pounds
      b. Fly ash 300 pounds
      c. Fine aggregate 2,600 pounds
      d. Water, approximate 70 gallons
   2. Compressive strength at 28 days; 100 psi to 200 psi.
D. Controlled Low Strength Material (CLSM):
   1. Approximate quantities per cubic yard:
      a. Cement 50 pounds
      b. Fly ash 250 pounds
      c. Fine aggregate 2910 pounds

d. Water, approximate 60 gallons
2. Compressive strength at 28 days 50 psi.

PART 3 - EXECUTION

3.01 PREPARATION

A. When natural soils for Class II, III, and IV backfill material is required as specified in Figure 3010.1, provide written certification from a testing laboratory that the material meets the class specified if so requested by the Engineer.
B. Locate, mark, and protect existing utilities and facilities in the work area.
C. Provide access to utility service locations, such as valves, manholes, and utility poles.
D. Identify owners of utilities on or near the site, and notify them of operations to occur.
E. Protect existing facilities and landscaping features, or replace as shown on the plans.
F. Protect bench marks, control points and land survey monumentation, or replace at Contractor's expense.

3.02 TRENCH EXCAVATION

A. Notify the Engineer prior to the start of excavation activities.
B. Remove and stockpile a minimum of 6” of topsoil for subsequent reuse.
C. Place excavated material away from trench. Grade spoil piles to drain. Do not allow spoil piles to obstruct drainage.
D. Remove rock, rubbish, boulders, debris, and other unsuitable materials at least 6 inches below, and on each side of the pipe. Restore grade using soil suitable for backfill.
E. Correct unauthorized excavation at no cost to Owner, using bedding or stabilization materials.
F. Provide protective fences and barricades around open excavations, appropriate to the surrounding area.
G. Provide weight tickets for stabilization material to the Engineer at the time of delivery.
H. Provide safety fence around open excavations.
I. Trench Excavation for Sanitary Sewers, Storm Sewers, Water Mains, and Pipe Culverts:
    1. Maximum and minimum pipe trench width: Min.=Pipe Dia.+1.5’; Max.=1.25*Pipe Dia. or 54”, whichever is greater.
    2. Flat trench bottom, conduit bearing directly on trench bottom (not applicable for rock excavation) for water main pipe only with bell hole shaping:
        a. Shape trench bottom to support pipe around 1/4 of perimeter for the full length of the pipe barrel.
        b. Provide bell holes.
    3. Trench bottom, conduit supported by bedding material:
        a. Excavate trench as shown on the detailed drawings.
        b. Install bedding material to support the full length of the pipe barrel.
    4. Trench depth:
        a. Flow Line plus Pipe Dia/8, or 4” min.
    5. Conform all trench operations to current OSHA regulations.
J. Structure Excavation:
    1. For concrete structures and parts of structures without footings, 18 inches outside the horizontal projection of the structure.
    2. For concrete structures with footings, 18 inches outside the footings.
    3. For anchor rods, 12 inches on each side of the rod.
    4. For buried anchors, the face of the buried anchor on one side and 24 inches outside the buried anchor on the other face.

3.03 ROCK OR UNSTABLE SOILS IN TRENCH BOTTOM

A. Notify the Engineer prior to over-excavation.

B. Engineer will determine the need for trench bottom stabilization prior to installation of pipes and structures.
C. See Figure 3010.1 for over-excavation of rock and wet or soft foundations.
D. Provide weight tickets for the stabilization material to the Engineer at the time of delivery.

3.04 SHEETING, SHORING, AND BRACING

A. Conform sheeting and bracing of all excavations to the latest state and federal regulations governing safety of workers in the construction industry.
B. Leave in place all temporary sheeting below 2 feet over top of pipe unless sheeting removal plan is approved by Engineer. Conform all trench operations to current OSHA regulations.
C. Move trench boxes carefully to avoid excavated wall displacement or damage.
D. When necessary or required, install adequate sheeting and bracing to prevent ground movement that may cause damage or settlement to adjacent structures, pipelines, and utilities.
E. Any damage due to settlement because of failure to use sheeting or because of inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired at the Contractor’s expense.
F. For sides of trenches in unsuitable, loose, or soft material, shore, sheet, brace, slope, or otherwise support by means of sufficient strength to protect employees working within them.
G. Where excavations are made with vertical sides that require supporting, use sufficient strength for sheeting and bracing to sustain the sides of the excavations and to prevent movement that could in any way injure the work or adjacent structures, or diminish the working space sufficiently to delay the work.
H. Select sheeting and bracing material of sufficient dimensions and strength to adequately support the sides of trenches and excavations, which will not split when driving and will be free of imperfections that may impair its strength or durability.
I. Drive sheeting to true alignment and ensure contact of adjacent pieces.
J. In wet excavation, use grooved sheeting to prevent passage of soil. Fill any voids between sheeting and face of excavation with suitable material.
K. Do not remove sheeting and bracing before the completion of the work, unless otherwise directed by the Engineer.
L. For sheeting left in place, cut off 18 inches for clearance below the bottom of the pavement in streets/highways and 18 inches below the original ground surface, unless otherwise required by the contract documents or the Engineer. Leave in place all temporary sheeting below 2 feet over top of pipe, unless a sheeting removal plan is approved by Engineer.

3.05 DEWATERING

A. Do all work in dry conditions; do not install pipes on excessively wet soil.
B. Perform the dewatering operation according to the dewatering plan submitted to the Engineer. Dewatering operations may be modified from the plan for actual field conditions, with approval of the Engineer.
C. Adequate dewatering is the Contractor’s responsibility unless otherwise stated in the contract documents.
D. Install dewatering system appropriate for the soil conditions.
E. Maintain water levels sufficiently below the bottom of trench excavation, (typically 2 feet) to prevent upward seepage.
F. Provide for handling water encountered during construction:
    1. Prevent surface water from flowing into excavation. Remove water as it accumulates.
    2. Do not use sanitary sewers for disposal of trench water. Discharging water into storm sewers requires Engineer's approval.
    3. Do not discharge water onto adjacent property.
    4. Maintain and control water discharge as necessary to prevent a safety hazard for vehicular and pedestrian traffic.
    5. Direct water discharge away from electrical facilities or equipment and intersections.
    6. Use noise and fume reducing dewatering equipment to minimize disturbance.

7. Provide at least two operating pumps for each trench opened in wet ground, and at the same time have one pump in reserve.

G. Place backfill in trenches prior to stopping dewatering operations.
H. Protect trench water discharge points from erosion.
I. Operate dewatering systems to prevent damage to adjoining structures and facilities.
J. Monitor adjoining structures and facilities during dewatering operations. Cease dewatering operations and notify the Engineer if damage is observed.

3.06 PIPE INSTALLATION

A. Pipe Bedding:
   1. Shape pipe bed to evenly support pipe at the proper line and grade, with full contact under the bottom of the pipe.
   2. Install pipe and system components.
   3. Place bedding simultaneously on both sides of the pipe. Correct any pipe displacements before proceeding.
   4. Place bedding in lifts no greater than 6 inches thick and consolidate.
   5. Concrete encasement: Install where shown on the plans.
   6. If required in the contract documents or if approved by the Engineer, flowable mortar or controlled low strength material may be used in lieu of other bedding material types.
   7. Secure pipe against displacement or flotation prior to placing flowable mortar or concrete encasement.
B. Haunch Support:
   1. Place granular haunch material in lifts no greater than 6 inches thick and consolidate by slicing with a shovel or using other approved techniques.
   2. If required in the contract documents, or if approved by the Engineer, concrete, flowable mortar, or controlled low strength material may be used instead of other haunch material types. Secure pipe against displacement or flotation prior to placing flowable mortar, controlled low strength material, or concrete encasement.
C. Primary and Secondary Backfill (Pipe Cover):
   1. Place pipe cover material in 6-inch lifts and compact to densities required according to class of material.
   2. If required in the contract documents or if approved by the Engineer, flowable mortar or controlled low strength material may be used in lieu of other cover material types. Secure pipe against displacement or flotation prior to placing flowable mortar or concrete encasement.
   3. Special pipe support: If required, provide special pipe support as shown on the plans.
D. Final Trench Backfill:
   1. Place backfill in the trench immediately after recording locations of connections and appurtenances or at Engineer's direction.
   2. Place backfill adjacent to structures immediately after concrete has reached design strength and connecting work has been completed.
   3. Allow no more than 100 feet of trench to be open overnight or when work is not in progress except as provided on the plans.
   4. Place suitable excavated backfill:
      a. Carefully place backfill over top of pipe and around structures.
      b. Compact as required.
   5. Compaction:
      a. Within street right-of-way and under pavement, compact each lift to at least 95% of maximum Standard Proctor Density, otherwise compact to at least 90%.
      b. In areas more than 3 feet below pavement structure, place backfill in lifts no thicker than 8 inches.
      c. In areas less than 3 feet below pavement structure, place backfill in lifts no thicker than 6 inches. Terminate backfill at 8 inches below finish grade in areas to remain unpaved, and to subgrade elevation in areas to be paved. Place 8 inches of topsoil in unpaved areas.

d. When crossing under levees, railroads, and State or Federal highways, comply with the compaction requirements of these jurisdictions, if more stringent than these requirements.
e. For Vitrified Clay Pipe (VCP), keep all heavy compaction equipment 5 feet above the top of the pipe. In the area less than 5 feet, use hand held compactors. Do not allow the compactor to come in contact with the pipe.

6. Moisture Range: Obtain required compaction within a soil moisture range of optimum moisture to 4% above optimum moisture content.
7. Dispose of surplus and unsuitable materials unless otherwise directed by owner.
8. Hydraulic compaction is not allowed unless authorized by the Engineer.

3.07 PIPE INSTALLATION IN CONSTRUCTED EMBANKMENTS

A. Install all pipes in trenches according to Section 3.06. When allowed by the contract documents, pipes may be constructed in embankments as follows:
B. Placing Backfill for Pipes:
1. Thoroughly tamp backfill under and around the pipe and in layers not to exceed 8 inches for the full length and width of the pipe.
2. Place backfill and thoroughly tamp around and over the pipe for its full length.
3. Extend the completed embankment on both sides of the pipe from the original ground line to at least 1 foot above the top of the pipe with a slope as shown in the contract documents. Construct the embankment over the pipe with a width no less than the outside diameter of the pipe and centered over the pipe. If necessary to accommodate construction traffic, increase the height of fill to the nominal diameter of the pipe or 3 feet, whichever is greater.
4. When pipe are laid wholly or partly in a trench, granular backfill material may be required for backfill. Compact the remainder of the fill to at least 1 foot above the top of the pipe with slopes as outlined above.
5. If the trench has been cut wide enough to permit use of a roller, after the pipe is bedded, thoroughly tamp the backfill material under and alongside the pipe with a mechanical tamper to the mid-height elevation of the pipe.
6. The contract documents may require placement of pipe with moisture control. When not required, place roadway pipe after construction of an embankment by methods that will produce results equivalent to those required for construction of the embankment, except that moisture determinations will be waived for placing backfill completed within 48 hours after excavation.
7. In addition to the normal backfill material requirements, when directed by the Engineer, build such approach fills to provide a roadway 10 feet in width over the pipe with grades no steeper than 10%.

3.08 STRUCTURE BEDDING

A. Bedding for Structures Bearing on Undisturbed Soils:
1. Shape the bottom to accurate grade and size.
2. Remove loose material, large clods, stones, and foreign materials.
3. In unstable soils or rock conditions, see Section 3.03 for stabilization requirements.

B. Bedding for Structures Bearing on Bedding Material:
1. Over excavate to minimum of 8 inches or as specified in the contract documents.
2. Place bedding material for structures according to the contract documents.

3.09 STRUCTURE BACKFILL

A. Removal of Forms and Falsework: See Section 6010, 3.06.
B. Placement of Backfill: Place backfill after structure concrete has reached at least 80% of the design strength and connecting work has been completed, unless otherwise specified. Determine strengths under comparable conditions. If strength is not determined, place backfill after 14 days.

C. Backfill Against Walls and Around Structures:
   1. Where backfill is required on both sides of a concrete wall and around all sides of monolithic structures, proceed with filling operations simultaneously on all sides of walls and structures so the fill is kept at approximately the same elevation at all times. Consider concrete box, arch, and circular culvert monolithic structures.
   2. Compact the 3 feet closest to all walls or wing faces by pneumatic or hand tampers only.
D. Placing Backfill with Excavated Material:
   1. Unless otherwise specified, see Section 3.06, D for suitable excavated materials for backfill.

3.10 OPEN CUT CASING PIPE INSTALLATION

A. Casing Pipe: Install casing pipe according to Section 3.01 to 3.07, as appropriate.

3.11 TRACER SYSTEM

A. Tracer wire shall be provided on all site utilities, including but not limited to:
   1. Telecommunication/copper.
   2. Empty conduits.
   3. Storm
   4. Sanitary.
   5. Gas.
   6. Water.
   7. Exceptions:
      a. Straight storm runs with daylight each end do not require tracer wire).
      b. Underground electrical lines do not require tracer wire.
B. Tracer wire: Solid, AWG #12, blue insulated, direct bury, Type TWHN. Install in trench attached directly to, parallel with, and centered above or below the utility.
C. Underground splices: Use Scotchcast splicing kits, 3M Company or approved equal.
D. Engineer shall provide specific details for tracer wire termination at each condition. Avoid receptacle boxes on posts in lawn areas (Install receptacle boxes on face of building or in flush ground boxes).
E. Test tracer wire for continuity after installation (see comment under “Specifications - Project Close-Out” above); All tracer wire which fails continuity testing shall be repaired or replaced as required until passing continuity testing. Provide Owner 48 hour notice of this activity.
F. In addition to tracer wire, Contractor shall install underground pipe markers: bright colored continuously printed plastic ribbon tape, 6” wide by 3.5 mils thick, manufactured for direct burial, with aluminum foil core for location by non-ferric metal detectors and bold lettering identifying buried item. Install 8” to 10” below grade directly above buried utilities.

3.12 FIELD QUALITY CONTROL

A. References:
   1. ASTM C 136; Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
   2. ASTM D 698; Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Moisture Using 5.5 pound (4.54 kg) Rammer and 12 inch (305 mm) Drop. (Standard Proctor Method)
   3. ASTM D 1556; Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
   4. ASTM D 2216; Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
   5. ASTM D 2922 and D 3017; Test Methods for Density of Soil and Soil-Aggregate in Place and Water Content of Soil and Rock by Nuclear Methods (Shallow Depth).
   6. ASTM D 4253 and D 4254, Test Methods for Maximum Index Density of Soils using a Vibratory Table and Minimum Index Density of Soils and Calculation of Relative Density.

B. Compaction Testing: Compaction testing of backfill, cooperate and coordinate with an independent testing laboratory selected by the Owner. Cost of initial compaction testing will be paid for by the Owner. Cost of retesting of failed test areas shall be paid for by the Contractor. Refer to Section 014000, 1.5, Test and Inspection Services, and this Section 3.12, G. below for additional requirements.
C. Schedule Testing: Notify the Owner's Representative and the independent testing laboratory when work is prepared for testing.
D. Granular Material Testing
   1. Testing of samples for compliance will be provided before delivery to site.
   2. If tests indicate materials do not meet specified requirements, change material and retest at Contractor's expense.
   3. Provide materials of each type from same source throughout the work.
   4. Upon delivery of 50 tons of aggregate to the site prior to spreading of rock, owner's geotechnical engineer will test gradation of aggregate and verify it meets specification. Contractor must notify owner's geotechnical engineer with a minimum 4 working day notice.
   5. During rock placement, gradation testing compliance will be required every 50 tons of aggregate material delivered to site. Contractor required to coordinate testing with geotechnical engineer. If aggregate does not pass gradation, contractor responsible for removal and replacement of material as determined by geotechnical engineer and owner.
   6. Contractor responsible for any subsequent gradation testing that is required for aggregate that does not pass gradation tests.
E. Soil Testing:
   1. Cohesive soils: Determine moisture-density relationships by ASTM D 698 (Standard Proctor). Perform at least one test for each type of cohesive soil used.
   2. Cohesive soils: Determine in-place density and moisture content using ASTM D 1556 (sand-cone method) and D 2216 or ASTM D 2922 and D 3017 (nuclear).
   3. Non-cohesive soils: Determine maximum and minimum index density and calculate relative density using ASTM D 4253 and D 4254 (cohesionless soils).
   4. Gradation: Test according to ASTM C 136.
F. Testing Frequency and Locations: Perform testing of the final trench backfill, beginning at a depth of 2 feet above the top of the pipe, as follows:
   1. Contractor provided:
      a. Make one test per each 2 vertical feet of consolidated fill at each street crossing.
      b. Make one test per each 2 vertical feet of consolidated fill for each 200 horizontal feet of trench.
      c. Additional testing may be required by Engineer if non-compliance or a change in conditions occur.
      d. Coordinate the timing of testing with the Engineer.
      e. The Engineer will determine the location of testing.
      f. If necessary, excavate to the depth and size as required by the Engineer to allow compaction tests. Place backfill and recompact.
   2. Owner provided:
      a. Coordinate the timing of testing with the Engineer.
      b. The Engineer will determine the location of testing.
      c. Test frequency will not exceed one test per each 2 vertical feet of consolidated fill for each 200 horizontal feet of trench.
G. Test Failure: Rework, recompact, and retest as necessary until specific compaction is achieved in all areas of the trench.
H. Retesting: In event of failed tests, rework the failed area and retest. Costs of such retesting shall be paid by the Contractor, at no additional cost to the owner.

END OF SECTION

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SECTION 31 35 00

EROSION AND SEDIMENT CONTROL

RFB #923904-01

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. NPDES General Permit No. 2
B. Stormwater Pollution Prevention Plan (SWPPP)
C. Erosion Control Measures
D. Velocity and Flow Control Measures
E. Sediment Control Measures
F. Application/Installation of Measures
G. Removal/Replacement of Measures

1.02 DESCRIPTION OF WORK

A. Furnish all materials; install, construct, maintain, and remove specified erosion control devices; at locations specified in the contract documents, or where specified by the Engineer, Owner and City.
B. Complete the required construction work on this project, while minimizing soil erosion and controlling water pollution. Maintain these features as specified, from initial construction stages to final completion of the project.

1.03 SUBMITTALS

Comply with Division 1 -General Provisions and Covenants, as well as the following:
Upon request, provide copies of all records and documentation related to compliance with the Iowa DNR NPDES Permit.

1.04 SUBSTITUTIONS

Comply with Division 1 -General Provisions and Covenants.

1.05 DELIVERY, STORAGE, AND HANDLING

Comply with Division 1 -General Provisions and Covenants.

1.06 SCHEDULING AND CONFLICTS

Comply with Division 1 -General Provisions and Covenants, as well as the following:
A. Implement erosion and sediment control measures at the appropriate time(s).
B. Coordinate construction to minimize damage to erosion and sediment control devices.

1.07 SPECIAL REQUIREMENTS

A. Permit:
   1. When applicable, comply with the requirements of the Iowa Department of Natural Resources, NPDES (National Pollutant Discharge Elimination System) General Permit No. 2 for Stormwater Discharge Associated with Industrial Activity for Construction Activities, and the Stormwater Pollution Prevention Plan.

2. For projects covered under the Iowa DNR General Permit No. 2, sign on as a co-permittee with the owner and any other contractors or subcontractors.
3. When applicable, comply with the local jurisdiction's permitting requirements.

B. Protection of Property: Prevent accumulation of soil, sediment, or debris from project site onto adjoining public or private property. Remove any accumulation of soil or debris immediately and take remedial actions for prevention.

Protect Existing Facilities At The Site Against Damage Including The Following:

1. The Contractor shall take precautions to ensure that equipment, vehicles, and construction operations do not disturb or damage existing grades, walls, drives, pavement, utilities, plants, lawns, and other facilities.
2. Verify locations and depths of all underground utilities prior to excavation and report any conflicts with new work to the Engineer.
3. Any damage to existing trees or shrubs branches and root systems to remain and be protected shall be repaired and/or pruned by an experienced arborist.
4. Repair, replace, and/or return to original condition any damaged item, without additional compensation.

C. Permit Compliance: When applicable, conduct all operations in compliance with the Iowa DNR NPDES General Permit No. 2. Labor, equipment, or materials not included as a bid item, but necessary to prevent stormwater contamination from construction related sources, are considered incidental. Incidental work related to compliance with the permit may include, but is not limited to: hazardous materials protection, fuel containment, waste disposal, and providing employee sanitary facilities.

D. Project Staging: Replacing erosion and sediment control practices that are damaged or removed by the contractor in a manner that is inconsistent with the current project staging or SWPPP is the Contractor's responsibility and will be at the Contractor's expense.

PART 2 - PRODUCTS

2.01 COMPOST BLANKETS

Comply with Section 32 92 19, Seeding, 2.07, C for compost material requirements for compost blankets.

2.02 COMPOST BLANKET AND FILTER BERM TACKIFIER

A. Use a biodegradable, organic binding agent or polyacrylamide that can be mixed with, or injected into, compost or filter material as it is placed, which is not detrimental to the establishment of vegetation.
B. Use in filter berms or compost blankets when specified in the contract documents.
C. Apply at the rate recommended by the manufacturer.

2.03 FILTER MATERIAL

Material for use in filter socks, filter berms, and other areas, as specified in the contract documents.

A. Use material derived from wood, bark, or other, non-toxic vegetative feedstocks.
B. Use material with no visible admixture of refuse or other physical contaminants, nor any material toxic to plant growth.
C. Use material meeting the following particle sizes:

Sieve Size	Percent Passing1
2”	100
1”	90-100
3/8”	0-30

[1]The target flow rate of in-place material is 10 gal/min/lf. The Engineer may approve use of alternate materials meeting the target flow rate.

2.04 FILTER SOCK

A. For slope and sediment control applications, use a continuous, tubular, knitted, mesh netting with 3/8 inch openings, constructed of 5 mil thickness, photodegradable HDPE.
B. For inlet protection, use a continuous, tubular, knitted, mesh netting with 3/8 inch openings, constructed of 500 denier polypropylene.
C. Use 1 inch by 2 inch (minimum) hardwood stakes or stakes of equivalent strength.

2.05 TEMPORARY ROLLED EROSION CONTROL PRODUCTS (RECP)

Use temporary rolled erosion control products that are classified and have material properties according to the Erosion Control Technology Council's (ECTC) guidelines as follows:

A. Material Classification:
    1. RECP Type 1 (Ultra Short-term): Functional longevity of 3 months or less and classified as follows:
        a. RECP Type 1.A: Mulch control net, consisting of a photodegradable synthetic mesh or woven biodegradable natural fiber netting.
        b. RECP Type 1.B: Netless rolled erosion control blankets, consisting of natural and/or polymer fibers, mechanically interlocked and/or chemically adhered together to form a RECP.
        c. RECP Type 1.C: Single-net erosion control blankets and open weave textiles, consisting of processed degradable natural and/or polymer fibers, mechanically bound together by a single rapidly-degrading, synthetic or natural fiber netting, or an open weave textile of processed rapidly-degrading natural or polymer yarns or twines woven into a continuous matrix.
        d. RECP Type 1.D: Double-net erosion control blankets, consisting of processed degradable natural and/or polymer fibers, mechanically bound together between two rapidly-degrading, synthetic or natural fiber nettings.
    2. RECP Type 2 (Short-term): Functional longevity between 3 and 12 months and classified as follows:
        a. RECP Type 2.A: Mulch control net, consisting of a photodegradable synthetic mesh or woven biodegradable natural fiber netting.
        b. RECP Type 2.B: Netless rolled erosion control blankets, consisting of natural and/or polymer fibers, mechanically interlocked and/or chemically adhered together to form a RECP.
        c. RECP Type 2.C: Single-net erosion control blankets and open weave textiles, consisting of an erosion control blanket composed of processed degradable natural or polymer fibers, mechanically bound together by a single degradable synthetic or natural fiber netting to form a continuous matrix, or an open weave textile composed of processed degradable natural or polymer yarns or twines woven into a continuous matrix.
        d. RECP Type 2.D: Double-net erosion control blanket, consisting of processed degradable natural and/or polymer fibers, mechanically bound together between two degradable synthetic or natural fiber nettings.
    3. RECP Type 3 (Extended Term): Functional longevity between 12 and 24 months and classified as follows:
        a. RECP Type 3.A: Mulch control nets, consisting of a slow-degrading synthetic mesh or woven natural fiber netting.
        b. RECP Type 3.B: Erosion control blankets and open weave textiles, consisting of processed slow-degrading natural or polymer fibers, mechanically bound together between two slow-degrading synthetic or natural fiber nettings to form a continuous

matrix, or an open weave textile composed of processed slow-degrading natural or polymer yarns or twines woven into a continuous matrix.

4. RECP Type 4 (Long Term): Functional longevity of 36 months and classified as follows: Erosion control blankets and open weave textiles, consisting of processed slow-degrading natural or polymer fibers, mechanically bound together between two slow degrading synthetic or natural fiber nettings to form a continuous matrix, or an open weave textile composed of processed slow-degrading natural or polymer yarns or twines woven into a continuous matrix.

B. Properties and Performance:
   1. Testing performed according to the ECTC's Testing Procedures for Rolled Erosion Control Products. Verify manufacturer's test results by independent testing.
   2. Material properties meeting the Erosion Control Technology Council's (ECTC) Standard Specifications for Rolled Erosion Control Products as follows:

Classification	Slope Application	Channel Application	Min. Tensile Strength
	Max. Grade*	Permissible Shear Stress	
RECP Type 1.A	5:1 (H:V)	0.25 lb/ft2	5 lb/ft
RECP Type 1.B	4:1 (H:V)	0.50 lb/ft2	5 lb/ft
RECP Type 1.C	3:1 (H:V)	1.50 lb/ft2	50 lb/ft
RECP Type 1.D	2:1 (H:V)	1.75 lb/ft2	75 lb/ft
RECP Type 2.A	5:1 (H:V)	0.25 lb/ft2	5 lb/ft
RECP Type 2.B	4:1 (H:V)	0.50 lb/ft2	5 lb/ft
RECP Type 2.C	3:1 (H:V)	1.50 lb/ft2	50 lb/ft
RECP Type 2.D	2:1 (H:V)	1.75 lb/ft2	75 lb/ft
RECP Type 3.A	5:1 (H:V)	0.25 lb/ft2	25 lb/ft
RECP Type 3.B	1.5:1 (H:V)	2.00 lb/ft2	100 lb/ft
RECP Type 4	1:1 (H:V)	2.25 lb/ft2	125 lb/ft

*Product tested according to ECTC Test Method No. 2 and meeting the ECTC Standard Specifications for "C" factor.

C. RECP Anchors: Stakes or staples as recommended by manufacturer, with a minimum length of 6 inches.

2.06 WATTLES

A. Netting: Open weave, degradable netting. Nominal diameter of 9 inches, or as specified.
B. Fill Material: Straw, wood excelsior, coir, or other natural materials approved by the Engineer.
C. Stakes: 1 inch by 1 inch (minimum) wooden stakes, or stakes of equivalent strength.

2.07 CHECK DAMS

A. Synthetic Permeable Check Dam (HDPE):
   1. Ditch Berm:
      a. Installed height of 9 to10 inches.
      b. Manufactured check dam constructed from sheets of perforated, UV-stabilized High Density Polyethylene (HDPE).
      c. Perforations of 30 to 40% open area.
   2. RECP for Permeable Check Dam (when specified): RECP Type 4, 4 feet wide.
   3. Anchors: As recommended by the manufacturer.
B. Triangular Foam Check Dam: Triangular-shaped device with a height of 8 to 10 inches and a base of 16 to 20 inches.
   1. Inner Support Material: Urethane foam.
   2. Outer Cover: Woven geotextile material shaped to fit around the inner support material, extending 2 to 3 feet beyond the bottom edge of the triangular-shaped inner support.
   3. Length: 7 feet.

C. Rock Check Dam:
   1. Aggregate: Erosion stone complying with Iowa DOT Article 4130.04.
   2. Engineering Fabric: Comply with Section 2.20.

2.08 LEVEL SPREADERS

A. Provide 2 inch by 8 inch (minimum) pressure-treated timber of the length specified.
B. Use timbers that are relatively straight and have a minimum length of 5 feet each.

2.09 RIP RAP

A. Class A Revetment: Comply with Iowa DOT Section 4130.
B. Class B Revetment: Comply with Iowa DOT Section 4130.
C. Class D and E Revetment: Comply with Iowa DOT Section 4130.
D. Erosion Stone: Comply with Iowa DOT Section 4130.

2.10 TEMPORARY PIPE SLOPE DRAINS

A. PVC, HDPE, and metal pipes as specified in Section 33 40 00, Storm Sewer, 2.01.
B. HDPE, Type C (corrugated interior).
C. All pipes listed are allowed for use within the right-of-way.

2.11 SEDIMENT BASIN OUTLET STRUCTURES

A. Base: Class C concrete unless otherwise specified in the contract documents.
B. Riser: CMP complying with Section 33 40 00, Storm Sewer; diameter as specified in the contract documents.
C. Dewatering Device:
   1. Drill holes in the riser of the number, diameter, and at the elevation specified in the contract documents.
   2. 1/4 inch by 1/4 inch or 1/2 inch by 1/2 inch wire mesh for hardware cloth.
D. Barrel: CMP complying with Section 33 40 00, Storm Sewer; diameter as specified in the contract documents.
E. Anti-Vortex Device: CMP complying with Section 33 40 00, Storm Sewer; diameter and riser diameter as specified in the contract documents.
F. Anti-Seep Collar: Corrugated metal sheet of same material and gage as barrel section.
G. Size according to plans.

2.12 SEDIMENT TRAPS

A. Erosion Stone: Comply with Section 2.09
B. Engineering Fabric: Comply with Section 2.20.

2.13 SILT FENCE

A. Fabric: Comply with Iowa DOT Article 4196.01.
B. Posts: 4 foot minimum steel (T-section) weighing at least 1.25 pounds per foot, exclusive of anchor plate. Painted posts are not required.
C. Fastener: Wire or plastic ties with a minimum tensile strength of 50 pounds.

2.14 STABILIZED CONSTRUCTION ENTRANCE

A. Entrance Stone: Comply with Iowa DOT Section 4122, Gradation 13, Macadam crushed stone.
B. Subgrade Stabilization Material: Use woven, UV-stabilized geotextile with a minimum tensile strength of 135 lb/ft.

2.15 DUST CONTROL

A. Water: Use potable water or water from a source approved by the engineer.
B. Calcium Chloride: Comply with Iowa DOT Article 4194.01.
C. (Not Used)
D. Soapstock (Soybean Oil):
   1. Use a commercially-available, undiluted, soybean oil soapstock emulsion.
   2. Comply with manufacturer's recommendations for storage, transportation, temperature, and application equipment requirements.

2.16 EROSION CONTROL MULCH

A. Conventional Mulch:
   1. Use dry cereal straw (oats, wheat, barley, or rye) or native grass straw.
   2. Use material that is free of noxious weeds, seed-bearing stalks, or roots, and will be inspected and approved by the Engineer prior to use.
   3. Other materials, subject to the approval of the Engineer, may be used.
B. Hydromulch:
   1. Wood Cellulose Mulch:
      a. Use material that is a natural or cooked cellulose fiber processed from whole wood chips, or a combination of up to 50% of cellulose fiber produced from whole wood chips, recycled fiber from sawdust, or recycled paper (by volume).
      b. Product contains a colloidal polysaccharide tackifier adhered to the fiber to prevent separation during shipment and avoid chemical co-agglomeration during mixing.
      c. Form a homogeneous slurry of material, tackifier, and water.
      d. Use a slurry that can be applied with standard hydraulic mulching equipment.
      e. Dye the slurry green to facilitate visual metering during application.
      f. Do not use materials that have growth or germination-inhibiting factors or any toxic effect on plant or animal life when combined with seed or fertilizer.
   2. Bonded Fiber Matrix (BFM):
      a. Produced from long-strand wood fibers, held together by organic tackifiers and bonding agents that, when dry, become insoluble and non-dispersible.
      b. Upon curing 24 to 48 hours, form a continuous, 100% coverage, flexible, absorbent, erosion-resistant blanket that encourages seed germination.
      c. Manufactured to be applied hydraulically.
      d. Physical Properties:
         1) Fibers: Virgin wood, greater than 88% of total volume.
         2) Organic Material: Greater than 96% of total volume.
         3) Tackifier: 8-10%.
         4) pH: 4.8 minimum.
         5) Moisture Content: 12% +/- 3%.
         6) Water-holding Capacity: 1.2 gal/lb.
      e. Dyed green to facilitate visual metering.
   3. Mechanically Bonded Fiber Matrix (MBFM): See Section 32 92 19, Seeding.
      a. Produced from long-strand wood fibers and crimped, interlocking synthetic fibers.\
      b. Within two hours of application, form a continuous, 100% coverage, flexible, absorbent, porous, erosion-resistant blanket that encourages seed germination.
      c. Manufactured to be applied hydraulically.
      d. Physical Properties:
         1) Wood Fibers: 73% minimum.
         2) Tackifier: 10% +/- 1%.
         3) Crimped, Interlocking Synthetic Fibers: 5% +/- 1%.
         4) Moisture Content: 12% +/- 3%.
         5) Water holding capacity: 1.2 gal/lb.
         6) Minimum pH: 4.8.

e. Dyed green to facilitate visual metering.

2.17 TURF REINFORCEMENT MATS (TRM)

A. Material Classification:
   1. TRM Type 1: Use a TRM that is constructed of a web of mechanically or melt-bonded polymer netting, monofilaments, or fibers that are entangled to form a strong and dimensionally stable mat. Bonding methods include polymer welding, thermal or polymer fusion, or the placement of synthetic fibers between two high-strength, biaxially-oriented nets, mechanically bound by parallel stitching with polyolefin thread. Products may contain a degradable component.
   2. TRM Type 2 and 3: Use a TRM that is constructed of a web of mechanically or melt-bonded polymer netting, monofilaments, or fibers that are entangled or woven to form a strong and dimensionally stable mat. Non-woven bonding methods include polymer welding, thermal or polymer fusion, or the placement of fibers between two high-strength, biaxially oriented nets, mechanically bound by parallel stitching with polyolefin thread. Use only components that are 100% synthetic and resistant to biological, chemical, and ultraviolet degradation.
   3. TRM Type 4: Use a high performance/survivability TRM that is composed of monofilament yarns woven into a resilient uniform configuration. Use a mat that has a matrix that exhibits very high interlock and reinforcement capacities with both soil and root systems and demonstrate a high tensile modulus. TRMs manufactured from discontinuous or loosely held together by stitched or glued, netting, or composites are not allowed in this category. Use only components that are 100% synthetic and resistant to biological, chemical, and ultraviolet degradation. Use this category when field conditions exist with high loading and/or high survivability requirements.

B. Properties and Performance: Meet the minimum material and performance requirements contained in the following table:

Property1		**Test Method**	**Type 1**	**Type 2**	**Type 3**	**Type 4**
Material	Thickness	ASTM D 6525	0.25 in	0.25 in	0.25 in	0.25 in
	Tensile Strength2	ASTM D 6818	125 lb/ft	240 lb/ft	750 lb/ft	3,000 lb/ft
	UV Resistance3	ASTM D 4355	80% @ 500 hrs	80% @ 1,000 hrs	80% @ 1,000 hrs	90% @ 3,000 hrs
Perfor	Maximum Shear Stress4 (Channel Applications)	ASTM D 6460	7 lb/ft2	10 lb/ft2	12 lb/ft2	15 lb/ft2
	Maximum Slope Gradient (Slope Applications)	N/A	1:1 (H:V) or flatter	1:1 (H:V) or flatter	1:1 (H:V) or greater	1:1 (H:V) or greater

1 For TRMs containing degradable components, all values must be obtained on the non-degradable portion of the matting.
2 Minimum Average Roll Values, machine direction only.
3 Tensile strength of structural components retained after UV exposure.
4 Minimum shear stress that fully-vegetated TRM can sustain without physical damage or excess erosion (0.5 in soil loss)
during a 30 minute flow event in large scale testing. Acceptable large scale testing protocol includes ASTM D 6460 or independent testing conducted by the Texas Transportation Institute, Colorado State University, Utah State University, or other approved testing facility. Bench scale testing is not acceptable.

2.18 INLET PROTECTION

A. Drop-in Intake Protection:
   1. Use a manufactured device that is inserted into the intake and is capable of trapping or filtering sediment from runoff prior to entering the storm sewer.
   2. All components must be contained entirely below the surface of the intake grate.

3. Incorporate means of emergency outflow to prevent flooding if plugged with sediment.

B. Surface-applied Intake Protection:
   1. Use devices or filter socks, placed around or over the intake, that are capable of trapping or filtering sediment from runoff prior to entering the storm sewer.
   2. Do not allow the device to completely block or plug the intake, preventing inflow.

2.19 FLOW TRANSITION MATS

A. UV-stabilized HDPE plastic sheet with openings for vegetation growth and energy dissipation.
B. Use a nominal sheet size of 4 feet by 4 feet by 1/2 inch.
C. Use duckbill style anchors, as specified by the mat manufacturer.

2.20 ENGINEERING FABRIC

Comply with Iowa DOT Article 4196.01, B (Embankment Erosion Control) and Iowa DOT Materials I.M. 496.01, Appendix G.

PART 3 - EXECUTION

3.01 SWPPP PREPARATION

A. Prepare a SWPPP according to the requirements of the Iowa DNR NPDES General Permit No. 2.
B. Ensure that controls utilized in the SWPPP conform to the type and quantity of erosion and sediment controls specified in the contract documents. MidAmerican Energy Environmental Services will provide a Notice of Intent template that must be used
C. Submit the completed SWPPP to the Engineer and MidAmerican Energy Environmental Services for review and approval prior to filing the Notice of Intent.
D. Upon approval of the Engineer, file public notices, as required by the NPDES General Permit No. 2.
E. File the Notice of Intent and fee, as required by the NPDES General Permit No. 2 and any local ordinance requirements.

3.02 SWPPP MANAGEMENT

Coordinate and carry out all the requirements of Iowa DNR NPDES General Permit No. 2 and any local ordinance requirements, including:

A. Update the SWPPP according to the requirements of the NPDES General Permit No. 2.
B. Revise the SWPPP and implement changes, as necessary, to prevent sediment or hazardous materials from being transported off the site.
C. Submit all SWPPP revisions to the Engineer for review and approval.
D. MidAmerican Energy will hire an approved Inspector to perform and maintain records of weekly erosion and sediment control site inspections, unless otherwise specified in the contract documents.
E. Maintain records of transfer of responsibility under the NPDES General Permit No. 2.
F. Retain all records on-site, or as required by the NPDES General Permit No. 2.
G. After final stabilization, MidAmerican Energy Environmental Services will file a Notice of Discontinuation, according to the NPDES General Permit No. 2 and at the recommendation of the Inspector and local authority.
H. Provide all records and documentation to the Engineer upon completion of the project. MidAmerican Energy will retain a copy of all records for the period required under the Permit.
I. Continue to perform the work required under this item throughout the duration of the project, and until final stabilization is achieved and a Notice of Discontinuation is filed.

3.03 EROSION AND SEDIMENT CONTROL INSPECTION

A. MidAmerican Energy will hire an approved Inspector to perform inspections according to and at frequency required by the Iowa DNR NPDES General Permit No. 2.
B. Schedule necessary maintenance or improvements for items that are included in the contract documents.
C. Notify the Engineer immediately of situations requiring attention beyond that provided for in the contract documents.
D. Provide copies of the inspection reports to the Engineer.

3.04 EQUIPMENT

Comply with Iowa DOT Article 2601.03.

3.05 COMPOST BLANKETS

A. Loosen the ground surface to a minimum depth of 1 inch.
B. Evenly spread compost, as specified in the contract documents, or as directed by the Engineer.
C. Divert concentrated flows away from the slope.
D. Do not operate heavy equipment over the compost blanket after placement, or throughout the required period of protection.
E. Inspect the ground under the blanket at regular intervals for signs of erosion.

3.06 FILTER BERMS

A. Install filter berm along the contour as specified in the contract documents, or as directed by the Engineer.
B. Turn the ends of the filter berm uphill to prevent runoff from flowing around the end of the berm.
C. When a vegetated berm is specified, apply seed to the surface of the berm.
D. Replace the berm when sediment accumulation reaches one-half of the height of the berm.

3.07 FILTER SOCKS

A. Installation:
    1. Pneumatically fill mesh filter sock of size and length specified in the contract documents, or as directed by the Engineer. Alternative methods of filling the sock may be allowed upon approval of the Engineer.
    2. Fill socks with filter material.
    3. Place the filter sock along the contour as specified in the contract documents, or as directed by the Engineer.
    4. Place additional filter material or soil from the site, on the upstream side of the sock, in the seam between the tube and the ground.
    5. Construct a “J-hook” at each end of a continuous run of filter sock, by turning the end of the sock uphill, as necessary to prevent runoff from flowing around the ends when water behind the sock ponds up to a level even with the top of the sock.
    6. Drive stakes into the ground at a maximum spacing of 10 feet, and as required to secure the sock and prevent movement.
    7. Repair or replace non-functioning filter socks that allow water to flow under the sock, are torn, or are otherwise damaged, due to inadequate installation.
    8. Remove filter material from damaged socks that are located along streambanks, around intakes, in ditches, or in other locations where the material may be carried to surface waters.
B. Removal: When specified in the contract documents, or as directed by the Engineer; remove the filter sock upon completion of the project, and after final stabilization is achieved; or as indicated in the SWPPP, if applicable.

1. Upon completion of the project, completely remove socks and filter material that are located along streambanks, around intakes, in ditches, or in other locations where the filter material may be carried to surface waters if the sock degrades and/or tears.
2. Slice the sock longitudinally. Remove and dispose of the filter sock material and stakes.
3. Spread the filter material and accumulated sediment to match finished grade and to ensure proper drainage.
4. If the site has been brought to finished grade and prepared for permanent seeding, spread and incorporate the filter material into the surface by tilling, or as required to break up any large particles and provide a finished surface suitable for permanent seeding.

C. Replacement:
1. When accumulated sediment reaches a level one-half the height of the sock, or when the sock becomes clogged with sediment and no longer allows runoff to flow through, remove the sock as described above, and replace according to the installation instructions above.
2. At the Engineer's option, the existing filter sock and accumulated sediment may be left in place, and a new filter sock installed up-slope from the existing filter sock.

3.08 TEMPORARY ROLLED EROSION CONTROL PRODUCTS (RECP)

Install temporary RECPs according to the manufacturer's published installation recommendations, subject to the following minimum requirements:

A. Slope Application:
1. Grade and smooth surface. Remove all rocks, clods, vegetation, or other obstructions that will prevent direct contact between the RECP and the soil surface.
2. When specified, prepare seedbed and place seed and fertilizer according to Section 32 92 19, Seeding prior to placing RECP.
3. Install anchor trench at top of slope. Seed and fertilize trench after backfill and compaction, if seeding is specified.
4. Unroll the RECP down or horizontally across the slope.
5. Place consecutive blankets down the slope end-over-end, shingle style.
6. Overlap ends of consecutive rolls a minimum of 3 inches, and install anchors at a maximum spacing of 18 inches along all overlaps.
7. Overlap edges of adjacent rolls a minimum of 2 inches.
8. Install anchors at edge seams between rows.

B. Channel/Ditch Application:
1. When specified, prepare seedbed and place seed and fertilizer according to Section 32 92 19, Seeding, prior to placing RECP.
2. Place end of first roll in the anchor slot at the center of the upstream channel and secure with anchors.
3. Position adjacent rolls in the anchor slot, overlapping adjacent rolls a minimum of 3 inches.
4. Place backfill material in anchor slot and compact. Unroll RECP over compacted slot and secure with anchors.
5. Unroll RECP downstream. Maintain a minimum 3 inch overlap between adjacent rolls. Secure edge lap with anchors.
6. Install intermittent staple check slots every 30 feet.
7. Construct end lap at end of roll and beginning of new roll. Overlap roll ends with upstream RECP on top.
8. Excavate longitudinal trench along both sides of the channel at the outside edges of installation. Place outer edges of RECP into longitudinal slot. Install anchors, place backfill material, and compact.
9. Terminate installation at downstream end with staple check.
10. Install anchors in a regular pattern over entire area covered according to manufacturer's published recommendations (minimum three anchors per square yard).

3.09 WATTLES

A. Installation:
   1. Construct a shallow trench, 2 to 4 inches deep, matching the width and contour of the wattle.
   2. Install wattle along contour of slope.
   3. Turn ends of wattle uphill to prevent water from flowing around ends.
   4. Place and compact excavated soil against the wattle, on the uphill side.
   5. Drive stakes through the center of the wattle, into the ground at a maximum spacing of 4 feet along the length of the wattle, and as needed to secure the wattle and prevent movement.
   6. Abut ends of adjacent wattles tightly. Wrap joint with a 36 inch wide section of silt fence and secure with stakes.

B. Removal: When specified in the contract documents, or as directed by the Engineer, remove the wattle upon completion of the project, and after final stabilization is achieved; or as indicated in the SWPPP, if applicable.
   1. Completely remove the wattle netting, filler material, and stakes.
   2. Spread the accumulated sediment to match finished grade and to ensure proper drainage.
   3. When allowed by the Engineer, the wattle netting may be sliced open and the filler material spread out over the ground. Removal of netting and stakes and spreading of sediment is still required.

C. Replacement:
   1. When accumulated sediment reaches a level one-half the height of the wattle, or when the wattle becomes clogged with sediment and no longer allows runoff to flow through, remove the wattle as described above, and replace according to the installation instructions above.
   2. At the Engineer’s option, the existing wattle and accumulated sediment may be left in place, and a new wattle installed up-slope from the existing wattle.

3.10 CHECK DAMS

A. Synthetic Permeable Check Dam (HDPE):
   1. Install according to the manufacturer's recommendations.
   2. When specified, provide an RECP under the check dam, installed according to the manufacturer’s recommendations.

B. Triangular Foam Check Dam: Install according to the manufacturer's recommendations.

C. Rock Check Dam: Construct according to plans.

D. Removal: When specified in the contract documents, or as directed by the Engineer, remove check dams upon completion of the project, and after final stabilization is achieved; or as indicated in the SWPPP, if applicable.
   1. Remove the check dam and dispose of materials, or salvage to the contractor.
   2. Remove the accumulated sediment or spread to match finished grade; ensure proper drainage.
   3. Stabilize the area disturbed by removal operations.

3.11 TEMPORARY EARTH DIVERSION STRUCTURES

A. Ensure positive drainage along the diversion toward the outlet area.

B. Adequately compact fill to prevent failures or seepage.

C. Outlet the diversion to undisturbed and/or stabilized areas only.

D. Stabilize the surface of the earth diversion with temporary erosion control seeding, as specified in Section 32 92 19, Seeding.

3.12 LEVEL SPREADERS

A. Butt multiple timbers together, as necessary to provide the required length.

B. Ensure the spreader is installed level in all directions. Adjust as necessary during construction to maintain spreader in a level condition.
C. Excavate a depression behind the spreader to the depth specified in the contract documents. The depression may be over-excavated up to 1 foot to provide an area for sediment accumulation.
D. Grade as required to prevent flow around the ends of spreader.
E. Remove the accumulated sediment from the depression when the depth is reduced below that specified in the contract documents.

3.13 RIP RAP

Install the quantity of rip rap (revetment stone or erosion stone) as specified in the contract documents.

3.14 TEMPORARY PIPE SLOPE DRAINS

A. Place slope drain on undisturbed soil or well compacted fill.
B. Carefully compact cohesive soils around inlet ends of the drain in 6 inch lifts.
C. Discharge slope drain to a stable outlet or to a sediment retention device.

3.15 SEDIMENT BASIN OUTLET STRUCTURES

A. Concrete Base: Construct the concrete base and anchor riser section, as shown on plans.
B. Dewatering Device:
   1. Drill holes in the riser section. The number, diameter, and configuration will be specified in the contract documents.
   2. Wrap the perforated section of the riser pipe with metal hardware cloth.
C. Anti-vortex Device: If required by the contract documents, firmly attach the cylinder to the top of the riser by welding or other means. Comply with plan details for fabrication.

3.16 ANTI-SEEP COLLAR

A. General: Place backfill material and compact overexcavation areas to a minimum of 95% Standard Proctor Density per Section 31 23 33 Trenching and Backfilling.
B. Concrete Collar:
   1. Place collars a minimum of 2 feet from pipe joints.
   2. Provide Class C concrete per Section 33 49 00 Storm Drainage Structures.
C. CMP Collar:
   1. Provide collar of same gage as the pipe barrel on which it is used.
   2. Paint or tag unassembled collars to identify matching pairs.
   3. Furnish each collar with two 1/2 inch diameter rods with tank lugs for connecting collars to pipe.
   4. Install collar with corrugations vertical.
   5. Seal the tap between the two half sections and between the pipe and connecting band with a bituminous jointing compound at the time of installation.

3.17 SEDIMENT TRAPS

Construct the storage area to the size and elevations specified in the contract documents.

3.18 SILT FENCES

A. Installation:
   1. Install material along the contour of the ground, as specified in the contract documents, or as directed by the Engineer.

2. Install silt fence with a mechanical soil slicing machine that creates a slit in the ground while simultaneously installing the fabric. The trenching method may be used when situations will not allow soil slicing, as determined by the Engineer.
3. Construct a “J-hook” at each end of a continuous run of silt fence, by turning the end of the silt fence uphill, as necessary to prevent runoff from flowing around ends when water behind the fence ponds to a level even with the top of the fence.
4. Insert 12 inches of fabric to a minimum depth of 6 inches (fabric may be folded below the ground line).
5. Compact installation by driving along each side of the silt fence, or by other means, as necessary to adequately secure the fabric in the ground, to prevent pullout and water flow under the fence.
6. Drive steel posts into the ground alongside the silt fence, to a minimum depth of 20 inches, unless otherwise specified by the Engineer. Space posts at 5 feet on-center maximum, or as required to adequately support silt fence.

B. Maintenance: Repair or replace non-functioning silt fence that allows water to flow under the fence, is torn, or is otherwise damaged, due to inadequate installation, at no additional cost to the Contracting Authority.
C. Removal:
1. Remove the silt fence upon final stabilization of the project area, or according to the staging indicated in the SWPPP.
2. Remove and dispose of silt fence and posts.
3. Remove sediment or spread to match finished grade; ensure proper drainage.
4. Stabilize the area disturbed by removal operations.

D. Replacement:
1. When accumulated sediment reaches a level one-half the height of the fence, remove the silt fence as described above, and replace according to the installation instructions above.
2. At the Engineer’s option, the existing silt fence and accumulated sediment may be left in place, and a new silt fence installed up-slope from the existing silt fence.
3. When allowed by the Engineer, the existing silt fence may be left in place and the accumulated sediment removed to the original ground line and within 6 inches of the silt fence. Carefully inspect the existing silt fence for structural integrity and signs of undermining. Make any necessary repairs.

3.19 STABILIZED CONSTRUCTION ENTRANCE

A. Install a stabilized construction entrance at all locations where construction traffic leaving the site presents the potential for sediment track-out.
B. Remove vegetation and excavate soft soils from entrance area. Thoroughly compact subgrade prior to placing stone.
C. Install culvert under entrance if necessary to maintain drainage.
D. Grade entrance to prevent runoff from flowing onto street. Direct all runoff from entrance to a sediment retention device.
E. When specified, install subgrade stabilization fabric prior to placing crushed stone.
F. Install layer of crushed stone to the thickness (6 inches minimum) and dimensions specified in the contract documents.
G. Remove the accumulated sediment and install new stone, as required to prevent track-out.

3.20 DUST CONTROL

A. Water: Apply frequent light watering to ground surface, as required to control dust.
B. Calcium Chloride: Apply according to Iowa DOT Section 2314.
C. (Not Used)
D. Soapstock (Soybean Oil):
1. Loosen the top 1 to 2 inches of the roadway surface.
2. Apply undiluted soapstock at a rate of 0.70 gal/yd2.

3. Allow product to penetrate through the loosened material.
4. Tight-blade road surface.

3.21 EROSION CONTROL MULCHING

A. Conventional Mulching:
   1. Use conventional mulching when the surface cannot be stabilized by seeding, due to season or ground conditions.
   2. Uniformly distribute mulch over the required areas, at a rate of 2 tons/acre for dry cereal straw, or 2.5 tons/acre for prairie hay.
   3. Work the mulch into the soil with a mulch tucker, designed to anchor the mulch into the soil, by means of dull blades or disks.
B. Hydromulching:
   1. Place mulch and tackifier (if applicable) in equipment specifically manufactured for hydraulic mulching.
   2. Mix materials with fresh, potable water using a combination of re-circulation through the equipment's pump and mechanical agitation to form a homogeneous slurry.
   3. If necessary, dampen any dry, dusty soil as required to prevent balling of the material during application.
   4. Apply hydromulch in multiple layers from opposing directions, where possible.
   5. Apply the slurry evenly over all specified areas, at the minimum component material rates specified:
      a. Wood Cellulose Mulch: 1) Mulch: 2,600 lb/acre dry weight. 2) Tackifier: 50 lb/acre.
      b. Bonded Fiber Matrix: 3,600 lb/acre dry weight.
      c. Mechanically Bonded Fiber Matrix: 3,600 lb/acre dry weight.
   6. Retain and count empty bags of mulch to ensure final application rate.

3.22 TURF REINFORCEMENT MATS

Install according to the manufacturer's published installation literature for the product specified and application (slope or channel).

3.23 SURFACE ROUGHENING

A. Directional Tracking:
   1. Do not use on slopes steeper than 3:1.
   2. Operate tracked equipment up and down exposed slope to create ridges perpendicular to the slope.
   3. Continue operation until the entire surface has been tracked.

B. Grooving/Furrowing:
   1. May be used on all slopes.
   2. Use rippers, disks, harrows, chisel plows, or other equipment capable of operating on the slope and creating grooves a maximum of 15 inches apart and 3 inches deep.
   3. Operate equipment along the contour of the slope to create grooves that are perpendicular to the slope.
   4. Perform over all exposed slopes as specified.

3.24 INLET PROTECTION

A. Install inlet protection devices according to the manufacturer's recommendations.
B. Remove the accumulated sediment, as required to maintain the inlet protection device in working order. Remove any accumulated sediment from streets open to traffic if it encroaches into the traveled roadway.

3.25 FLOW TRANSITION MATS

Install according to the manufacturer's published recommendations.

3.26 TEMPORARY EROSION CONTROL SEEDING

Comply with Section 32 92 19, Seeding.

END OF SECTION

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SECTION 32 11 23

AGGREGATE BASE COURSES

RFB #923904-01

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Aggregate base.

1.02 RELATED SECTIONS

A. Section 31 20 00 - Earthwork.
B. Section 32 13 13 - Concrete Paving.

1.03 REFERENCES

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2001 (2004).
B. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2000a.
C. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2000.
D. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2002.
E. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 1994(R 2001).
F. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2000.
G. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.
H. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.04 SUBMITTALS

A. Materials Sources: Submit name of imported materials source and provide material certifications.

1.05 PROJECT CONDITIONS

A. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Aggregate Base Course: Conforming to State of Iowa Highway Department IDOT class A road stone approved by geotechnical engineer.

2.02 SOURCE QUALITY CONTROL

A. Testing of samples for compliance will be provided before delivery to site.
B. If tests indicate materials do not meet specified requirements, change material and retest at Contractor's expense.
C. Provide materials of each type from same source throughout the work.
D. Upon delivery of 1,000 tons of aggregate to the site prior to spreading of rock, owner’s geotechnical engineer will test gradation of aggregate and verify it meets specification. Contractor must notify owner’s geotechnical engineer with a minimum 4 working day notice.
E. During rock placement, gradation testing compliance will be required every 200 tons of aggregate material delivered to site. Contractor required to coordinate testing with geotechnical engineer. If aggregate does not pass gradation, contractor responsible for removal and replacement of material as determined by geotechnical engineer and owner.
F. Contractor responsible for any subsequent gradation testing that is required for aggregate that does not pass gradation tests.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

A. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

A. Under Paving:
   1. Place aggregate base course to a total compacted thickness as specified on site plan.
   2. Compact to 95 percent of maximum dry density.
B. Level and contour surfaces to elevations and gradients indicated.
C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.04 TOLERANCES

A. Flatness: Maximum variation of 1/4 inch (6 mm) measured with 10 foot (3 m) straight edge.
B. Variation From Design Elevation: Within 1/2 inch (12 mm).

3.05 FIELD QUALITY CONTROL

A. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556.
B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor").
C. If tests indicate work does not meet specified requirements, remove work, replace and retest at Contractor's expense.
D. Contractor shall coordinate work with testing laboratory before proceeding with each phase or stage of work.

3.06 CLEAN-UP

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

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SECTION 32 13 13

CONCRETE PAVING

RFB #923904-01

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Concrete integral curbs, gutters, and driveways.

1.2 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including Bidding Requirements, General and Supplementary Conditions and Division I Specification Sections, apply to work specified in this Section.
B. Comply with ACI 316 "Recommended Practice for Construction of Concrete Pavement and Concrete Bases" for all work.

1.3 SUBMITTALS

A. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.
B. Certification of concrete C-4 design mix with Class 3 durability aggregate by a testing laboratory. Submit prior to placement.
C. Submit plan for construction sequence and schedule prior to commencing construction.

1.4 QUALITY ASSURANCE

A. Obtain cementitious materials from same source throughout.
B. Follow recommendations of ACI 306R when concreting during cold weather.
C. Cost of field and laboratory testing will be borne by the Contractor. Testing by laboratory approved by the Owner. Lab reports shall be simultaneously forwarded to the Owner, Contractor and Engineer.
D. Testing:
    1. Slump to be checked in accordance with ASTM C143. One test minimum per hour.
    2. Air content measured in accordance with ASTM C231, or C173. One test minimum daily.
    3. Strength tests:
        a. Take three (3) cylinders for each one hundred fifty (150) cubic yards or part thereof. Minimum one set of three (3) cylinders per each day's pour.
        b. Each cylinder shall be plainly marked showing cylinder designation (1A, 1B, 1C).
        c. Job cure each cylinder three (3) days.
        d. After three (3) days, send cylinders A and B to the laboratory approved by the Engineer for testing at ages seven (7) days and twenty-eight (28) days. Cylinder C to remain at the job as a "spare" cured under same conditions as concrete in the area from which it was taken.
        e. The date and location of each sample shall be marked on the Contractor’s job set of plans.
        f. Load and core tests shall be required only if cylinder tests indicate concrete does not meet Specifications. Such tests, if deemed advisable by the Engineer, shall be arranged and paid for by the Contractor.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F (4 degrees C), or surface is wet or frozen.

1.6 CODES, PERMITS AND FEES

A. The entire installation shall fully comply with all local and state laws and ordinances, and with all established codes applicable thereto.

1.7 SITE DISTURBANCES

A. Take precautions to ensure that equipment and vehicles do not disturb or damage existing site grading, walks, drives, utilities, plants, etc.
B. Verify locations and depths of all underground utilities prior to excavation.
C. Repair and/or return to original condition any damage caused by Contractor's negligence at no cost to Owner.
D. Provide temporary barricades and warning lights as required for protection of project work and public safety.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

A. Concrete Materials: Provide in accordance with State of Iowa Highways standards 4101 for 4,000 psi strength.

2.2 PORTLAND CEMENT

A. ASTM C150, type 1L.

2.3 SAND

A. Clean, hard, washed and well graded. Sand shall conform with ASTM C33.

2.4 COARSE AGGREGATE

A. Aggregate shall conform to ASTM C33. Aggregate for footings and other unexposed concrete may be gravel. Aggregate for exterior concrete and surfaces shall be limestone (max. size 1"). No substitutions will be allowed. Evidence of staining due to impurities will be cause for rejection of work.

2.5 MIXING WATER:

A. Clean and free from oil, acid and injurious amounts of vegetable matter, alkalis and other impurities.

2.6 ADMIXTURES

A. Air entrainment: 6%, + 1% or -0.5%.
B. Air-entraining agents shall conform to ASTM C260.
C. Calcium Chloride is not to be used. No other admixtures shall be used without the expressed, written consent of the Engineer.
D. A water-reducing agent may be used as deemed necessary, to be in conformance with the latest ASTM requirements.

2.7 EXPANSION JOINT FILLERS

A. Expansion joint filler shall be provided with “tear off” strips equal to Expansion Strips by Reflectix or Cellu-Cushion EXP 200 by Sealed Air. Joints to receive sealant shall be primed in accordance with manufacturer’s recommendations.

2.8 FORM MATERIALS

A. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751).
   1. Thickness: 1/2 inch (12 mm).

2.9 EXPANSION JOINT SEALANT

A. Expansion joint filler shall be provided with “tear off” strips equal to Expansion Strips by Reflectix or Cellu-Cushion EXP 200 by Sealed Air. Joints to receive sealant shall be primed in accordance with manufacturer’s recommendations.

2.10 CURE AND SEAL

A. CS-309 W.R. Meadows, Inc.; Rez-seal Euclid Chemical Company or equal.

2.11 ACCESSORIES

A. Liquid Surface Sealer: White Pigmented Curing Compound: In accordance with State of Iowa Highway standards 4105.
B. Joint Sealer: Type Hot Poured Elastic as specified in State of Iowa Highways standards 4136.

2.12 CONCRETE STRENGTH

Concrete mix for exterior slabs, structural slabs, walls, and steps:

A. Minimum of 4000 psi compressive strength at twenty-eight (28) days.
B. Minimum air content of 6.0%. To allow for loss during placement, the air content of fresh, un-vibrated concrete shall be 7.0%.
C. Minimum of six (6) sacks of cement per cubic yard. Maximum of 15% replacement of cement with fly ash will be permitted.
D. Slump four inches (4") maximum.

2.13 CONCRETE MIX DESIGN

A. Concrete Properties:
   1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 4,000 psi (28 MPa).
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight in accordance with State of Iowa Highway standards 2301.
   3. Cement Content: Minimum 510 lb per cubic yard (306 kg per cubic meter) with fly ash and 600 lb per cubic yard (360 kg per cubic meter) without fly ash.
   4. Total Air Content: 6.5 percent, determined in accordance with ASTM C 173/C 173M.
   5. Maximum Slump: 3 inches (75 mm).

2.14 MIXING

A. Except as otherwise specified, concrete shall be ready-mixed or job-mixed at the Contractor's option, and in accordance with requirements of ACI 318-77. Ready-mixed concrete shall be

mixed and delivered to the project in accordance with ASTM C94. Maximum mixing time is one (1) hour.

2.15 REINFORCING STEEL

A. Reinforcing Steel: ASTM A 615/A 615M Grade 40 (280); deformed billet steel bars; epoxy coated finish.
B. Dowels: ASTM A 615/A 615M Grade 40 (280); epoxy coated unfinished finished.

2.16 CURING AND PROTECTION MATERIALS

A. Liquid Curing Compounds: White pigmented; dry to the touch in 4 hours, non-tracking in 12 hours. Readily applied by spraying at temperatures above 40° F.
B. Plastic Film: White pigmented, polyethylene film, minimum thickness: 4 mil.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify compacted granular base is acceptable and ready to support paving and imposed loads.
B. Verify gradients and elevations of base are correct.

3.2 SUBGRADE PREPARATION

A. Excavate, fill, compact, grade and prepare subgrade as specified in Earthwork Section 31 20 00.
B. Moisten base to minimize absorption of water from fresh concrete.

3.3 FORMS

A. Use wood or steel forms adequately staked and braced for all exposed slab edges.
B. Place and secure forms to correct location, dimension, profile, and gradient. Secure forms in place to maintain grade and alignment while concrete is placed and finished.
C. Set base of form at subgrade elevation or below with top of form at pavement surface elevation at edge of slab; set forms on properly compacted materials.
D. Oil forms before concrete is placed.
E. Leave forms in place not less than eight (8) hours after concrete is placed. If removal causes damage to concrete, leave forms on as long as necessary to prevent damage.
F. Remove forms with care to prevent cracking, spalling or overstressing concrete.

3.4 CONCRETE PLACEMENT

A. Place concrete in accordance with State of Iowa Highways standards 2301.
B. Ensure reinforcement, inserts, embedded parts, and formed joints are not disturbed during concrete placement.
C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
D. Consolidate by tamping and screed excess concrete flush with forms; edges adjacent to forms, expansion joints, curbs, or fixture shall be thoroughly spaded for full depth.
E. All concrete shall be consolidated with mechanical vibration equipment.

3.5 JOINTS

A. The Contractor shall submit a concrete jointing plan to the Owners Representative for approval 10 days prior to the start of paving. Joint design for concrete pavement shall be based on the

current Guide for Design and Construction of Concrete Parking Lots published by the American Concrete Institute (ACI 330R-92). It is desired to have joint lines match edges of travel lanes.

B. Align curb, gutter, and sidewalk joints.
C. Place 1/2 inch (8 mm) wide expansion joints to separate paving from vertical surfaces and other components for sidewalks.
D. Saw cut contraction joints 1/4 inch (6 mm) wide at an optimum time after finishing. Cut 1/3 into depth of slab. Minimum depth of cut shall be 1.5 inches.
E. Round outside edges of sidewalk with edging tool on approximately one half-inch (1/2") radius.
F. Round edges of sidewalk or curbs adjacent to expansion joints with edging tool with approximately one-eighth inch (1/8") radius.
G. Construction Joint - Keyed and tied joints shall be used at ends of all concrete pours. Bars shall extend through joints a minimum of twenty-four (24) bar diameters.
H. Expansion joints (isolation joints) shall be installed in concrete pavement slabs and sidewalks where the concrete meets other structures such as light pole bases, intakes, buildings and all other similar structures. Hold joint material down one-half inch (1/2") and fill with sealant. Also used were sidewalk meets concrete curb.

3.6 PLACING AND PROTECTING CONCRETE

A. Place no concrete when stormy or inclement weather prevents good workmanship, when subgrade is frozen or if air temperature is 38 degrees F. or below.
B. No concrete shall be placed until Owner's Representative has inspected and approved forms, placement of reinforcement, pipes, sleeves, conduit and other inserts.
C. Before placing concrete, remove all debris, water and ice from the place to be occupied by the concrete. Wet subgrade and forms immediately prior to placing concrete.
D. Concrete shall be deposited in the forms as nearly as possible to final location. The placing or depositing of all concrete shall be done in accordance with requirements of the ACI 318-77. Brush on neat grout where placing against hardened concrete.
E. Erect windbreaks to prevent strong, hot winds from drying exposed slabs while they are being finished. Keep concrete moist.
F. Use of salt or other chemicals is prohibited. Use of accelerating admixtures will not be permitted.
G. Cold weather concreting shall be done only if Contractor can maintain temperatures of seventy (70) degrees F. or above for three (3) days or fifty (50) degrees F. or above for five (5) days. Do not allow concrete to freeze for next four (4) days. Keep concrete moist. Place no concrete for foundations on backfilled earth, disturbed or frozen earth. During cold weather concreting prevent freezing of soil beneath footing. All compacted fill to receive concrete floors shall be brought to a temperature of fifty (50) degrees before concrete floor is placed and shall be maintained at this temperature until concrete has taken its final set.
H. During and immediately after depositing of concrete, compact and work around edges of vertical surfaces to produce dense homogeneous mass, free from honeycombs or other defects. Manpower, tools and equipment shall be adequate for job requirements.

3.7 FINISHING

A. Screed, level and float all slabs to true, level and straight lines.
B. Exterior slabs and platforms to be medium hair broom finish, with no coarse aggregate visible, unless otherwise specified on drawings.

3.8 CURING AND PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury. Place sealer on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

B. Do not permit vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.
C. All concrete shall be protected during cold weather for at least five (5) days after placement.
D. Concrete injured by frost action shall be removed and replaced at Contractor's expense.
E. Prevent water from flowing along edge of pavement, curb or sidewalk and undermining slab.

3.9 TOLERANCES

A. Maximum Variation of Surface Flatness: 3/16 inch (6 mm) in 10 ft (3 m).
B. Maximum variation from true position: 1/4 inch (6 mm).

3.10 FIELD QUALITY CONTROL

A. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd (76 cu m) or less of each class of concrete placed.
   1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
   2. Perform one slump test for each set of test cylinders taken.
B. Owner will select and pay for independent testing laboratory and Contractor shall coordinate work with testing laboratory before proceeding with each phase or stage or work.

3.11 SCHEDULES

A. Driveway and Sally Port Pavement: 8 inches thick typical.
B. Parking Lot Pavement: 6 inches thick typical.
C. Sidewalk Pavement: 4 inches thick typical.

END OF SECTION

SECTION 32 13 73

PAVEMENT JOINT SEALANTS

RFB #923904-01

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:
   1. Expansion and contraction joints within cement concrete pavement.
   2. Joints between cement concrete and asphalt pavement.

1.02 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Samples: For each type and color of joint sealant required.
C. Product test reports.
D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.03 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

1.04 WARRANTY

A. Provide two year warranty from time of substantial completion for polyurethane sealants. Include coverage for installed sealants which fail to achieve watertight seal, exhibit loss of adhesion or cohesion, and sealants which do not cure.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.
B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.02 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
   1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
B. Colors of Exposed Joint Sealants: gray, unless selected by Architect from manufacturer's full range.

2.03 POURED JOINT SEALANTS

A. Pavement, Longitudinal and Transverse Joints:
   1. Products:
      a. Bemac, Div. of McAsphalt; Beram 195/195LM.
      b. CRAFCO; ROAD SAVER 231.
      c. Koch Pavement Solutions; Koch Product #9030
      d. Maxwell Products, Inc.; Elastoflex 71.
      e. P.T.Products; DURA FILL 3405 LM.
      f. W.R.Meadows; 3405 Modified (Hot Pour)
      g. WRM SOF SEAL (2Comp. Cold Pour)
      h. Or equal specifically approved by engineer.
B. Expansion Joints in Walks and Parking
   1. Products:
      a. Sonneborn Products; Sonolastic SL-1. Color gray.
      b. Or equal specifically approved by engineer.

2.05 EXPANSION JOINT FILLERS

A. Non-Linear Expansion Joints
   1. Polyethylene closed cell foam expansion joint filler. BASF, Sonoflex F.
   2. Only allowed at small curved joints, such as bollards or roof drain downspouts.
   3. Or equal specifically approved by engineer.
B. Linear Expansion Joints
   1. Resilient joint fibrous expansion board joint filler. Formflex Expansion Joint.
   2. Or equally specifically approved by engineer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Timing: Unless otherwise provided, before any portion of the pavement is opened to the Contractor's forces or to general traffic, expansion joints and sawn joints shall be sealed.
B. Cleaning:
   1. Before sealing joints narrower than 3/8 inch, the residue from sawing shall be cleaned from the crack. Dry sawing residue shall be blown from the joint. Wet sawing residue shall be flushed away by high pressure water blast cleaning.
   2. For joints 3/8 inch wide or wider, sand cleaning shall be used. When the joint surfaces appear dry by visual examination, the upper 3/4 inch of each joint face shall be cleaned by sand blast methods, followed by joint cleaning with air blasting. Air compressor shall provide moisture and oil-free compressed air. The angle of approach of the sand blast nozzle to each vertical face of the reservoir shall be approximately 30 degrees and the sand blast nozzle must have a guide which inserts in the joint and assures positive location and directional control of the nozzle.
   3. Joint Sealer:
      a. Joint sealer shall be prepared and installed in the joint and to the proper level as shown in the contract documents and as recommended by the manufacturer.
      b. Hot-poured sealers shall be heated in a thermostatically controlled heating kettle; the material shall be heated to the temperature required for use, but not above that recommended by the manufacturer. After sealing, excess sealer shall be removed from the pavement surface.
      c. Joint sealer shall be placed only when the pavement and ambient air temperatures are 40 degrees Fahrenheit or higher. When near this minimum, additional air blasting or drying time or both may be necessary to assure a satisfactory bond to the joint surfaces.

d. When this sealer cannot be properly placed due to late fall work, the Contractor shall submit a joint construction plan and sealing details to the Jurisdictional Engineer for approval before paving can begin.
e. Joints shall be sealed the same day they are cleaned. Sealing shall be done only when the joint surfaces appear dry by visual examination.
f. Where a curb does not exist, the joint opening at the pavement edges shall be sealed with tape.
g. If surface correction required the joints may need to be recleaned and resealed.

C. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
D. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
E. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION

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SECTION 32 31 13

CHAIN LINK FENCING

RFB #923904-01

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Fence framework, fabric and accessories.
B. Concrete post bases.

1.2 QUALITY ASSURANCE

A. Fencing shall meet or exceed minimum standards established by the Chain Link Fence Manufacturers Institute (CLFMI) Product manual or as specified or detailed, whichever is more stringent, for materials, finishes and installation.
B. Manufacturer Qualifications:
   1. Company specializing in manufacturing the products specified in this section.
   2. Obtain chain link fences and gates, including accessories, fittings, and fastenings as complete units from a single source.
C. Perform installation under supervision of factory-authorized representative.

1.3 SUBMITTALS

A. Shop drawings: Indicate layout, spacing of components, gates, post foundation dimensions, hardware anchorage and schedule of components.
B. Product Data: Provide data on finishes, fabric, posts, accessories, fittings and hardware and gates.
C. Submit manufacturer's technical data and installation instructions for the chain link fencing and gates.

PART 2 – MATERIALS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Anchor Fence Company, Inc.
   2. Anchor Die Cast, Inc.
   3. Master Halco
   4. The Tymetal Corporation
   5. Duke's Wire Mesh
   6. Approved equal.

2.2 MATERIALS

A. Fence Height:
   1. Provide 12'-0" to top of mesh (without razor wire top guard) where specifically indicated on the drawings.
B. All new materials; used, re-rolled, re-galvanized or open seam posts or rails not acceptable.
C. Posts, gate frames, braces, rails, tension bars, truss rods and tension wire shall be of steel. Gate hinges, post tops, tension bar bands, and other parts shall be of steel or iron except that post tops, rail ends, ties and clips may be of aluminum.

2.3 COMPONENTS

A. Fabric:
   1. 9-gauge (min.) steel wire woven in a 2” diamond mesh, one-piece fabric width.
   2. Minimum breaking strength: 1290 lbf.
   3. Top and bottom selvages twisted and barbed.
   4. Finish:
      a. Galvanized after weaving by hot-dip process to give a minimum of 1.2 oz. of zinc/sq. ft. of wire surface distributed over entire fabric, including cut ends, in accordance with ASTM A392 Class 1.

B. Welded Razor Wire:
   1. Welded straight-blade netting: 150mm x 300mm
   2. Surface Treatment: Galvanized Coating – 80-100g/m
   3. Diamond Hole Size: 2” short and long diagonal.
   4. Blade Type: CBT-60
   5. See drawings for locations near cantilever gates.

C. Framework:
   1. Steel Pipe – Type I: ASTM F -1083, standard weight (Schedule 40) galvanized pipe; sizes as indicated. Hot-dip galvanized with minimum average zinc coating of 1.8 oz./ft.2. Sizes as indicated.
   2. Steel Pipe – Type II: Steel pipe cold-formed and welded per ASTM F-1043, Group 1C or Group 4, having a minimum yield strength of 50,000 psi. The external zinc coating shall be Type B, zinc with polymer film, 0.90 oz./ft.2 minimum zinc coating with a chromate conversion and a verifiable polymer film. The internal coating shall be Type B, zinc 0.90 oz./ft.2 minimum or Type D, zinc pigmented, 81% nominal coating with 0.30 mils minimum thickness. Sizes as indicated.
   3. Framework Sizes:

Description	Nominal Outside Diameter	Nominal Weight Per Foot (Lbs/Ft)	
		Type I	Type II
End, corner and pull posts:	2.875”	5.79	4.64
Rails and post braces:	1.66”	2.27	1.83
Intermediate (Line) posts:	2.375”	3.65	3.12
Gate Posts:			
Swinging: Up to 6’ wide:	2.875”		4.64
Over 6’ to 12’	4.000”		8.65
Over 12’ to 18’	6.625”		18.02
Over 18’ to 24’	8.625”		27.12
Sliding: All widths	4.000” *		8.65
Gate Frame:	2.00”		2.28
Gate Interior Bracing:	1.66”		1.83

* 4” posts shall be provided at both the counterbalance and latch side of the gate opening.

D. Accessories
   1. Post Tops: Pressed steel, cast iron, or cast aluminum alloy ornamental tops or combination tops with razor wire supporting arms, as required. The post tops shall fit over the outside of posts and shall exclude moisture from the posts.
   2. Rail and Brace Ends: Pressed steel, cast iron, or cast aluminum alloy, cup-shaped to receive rail and brace ends.
   3. Tension (Stretcher) Bars: Steel strip, Minimum 3/4” wide x 3/16” thick and not less than 2” shorter than fabric height. Provide one tension bar for each end and gate post, and two for each corner and pull post.

4. Tension (Stretcher) Bar Bands: Pressed steel, minimum 300-degree profile curvature for secure fence post attachment.
5. Truss Rods: Steel rod, galvanized, 3/8” diameter merchant quality with turnbuckle.
6. Tension Wire: Marcelled 7-guage steel wire with minimum coating of 0.80 ounces of zinc or 0.40 ounces of aluminum per square foot of wire surface and conforming to ASTM A 824.
7. Stainless Steel Straps (Hog Rings):
   a. Fabric to Intermediate (Line) Posts, Rails, and Braces: ASTM F626, 9-gauge galvanized steel. Minimum zinc coating 1.20 oz/ft².
   b. Fabric to Tension Wires: ASTM F626, 9-gauge galvanized steel. Minimum zinc coating 1.20 oz/ft².
8. Barbed Tape/ Concertina: ASTM F 1910 430 Stainless Steel, 0.025 inch thick x 1” wide prior to forming, die stamped to produce 4 barbed points at 4 inches on center. Tape cold clenched over stainless-steel core wire with minimum tensile strength of 220,000 psi. 1.2 inch minimum length for each barb Concert in a 51 loop 5-clip 25-foot configuration. 30-inch coil.
   a. Clips for fastening barbed tape to chain link fencing shall be fabricated from 0.065" x 0.375" AISI T 430 stainless steel, and capable of withstanding a minimum load of 200 lbs.
   b. Clips shall be installed to prevent the slipping of one loop past another.
9. Finishes:
   a. Unless noted otherwise, all iron and steel components, except wire and framework; hot-dip galvanized after fabrication to produce average minimum zinc coating weight of 1.2 oz. per square foot of surface.

E. Concrete Mix:
   1. ASTM C94 Portland Cement concrete with maximum 3/4" aggregate having minimum compressive strength of 3,000-psi at 28 days.

F. Manual Gates:
   1. Gate widths as indicated on plans.
   2. Gate height as indicated on plans.
   3. Gates shall be designed for manual operation by one person.
   4. Gates shall be factory assembled in one section.
   5. Gate frames: Gate frames shall be of welded construction, fabricated in accordance with ASTM F1184, Type II, Class 2, using 2” OD galvanized steel tube or aluminum alloy extrusions.
   6. Bracing: Provide adjustable bracing as required to comply with the performance deflection criteria listed in ASTM F1184. Bracing shall be 1 5/8” OD.
   7. Gate shall operate smoothly.
   8. Gate hangers, latches, brackets, guide assemblies, and stops: Malleable iron or steel, galvanized after fabrication. Provide positive latch with provisions for padlocking.
      a. Manufactured to allow installation of future Owner provided interlock to control gates. Coordinate layout with Owner prior to shop drawing submittal and fabrication.
   9. Gate Hinges shall be non-lift-off type, malleable and permit 180-degree gate opening.
   10. Chain link fence fabric shall be the same type as used in fence construction.
   11. Finish: Galvanized to match fencing.

G. Electromechanical Locks:
   1. Provide electro-mechanical locking devices for sliding gates and personnel gates that are solenoid actuated such that the deadbolt retracts when the solenoid is energized and remains electrically retracted until the gate is closed.
   2. Provide continuous duty type solenoid, rated for 120V ac, 60Hz operation.
   3. Ensure the locking device is unlockable by key and keyed on both sides.
   4. Monitor status of the electro-mechanical lock by two limit switches (integral to the locking device) wired in series. Ensure one switch monitors the deadlock lever and the other monitors the locking tongue.

PART 3 – EXECUTION

3.1 GENERAL

A. Installation to conform to ASTM F-567.
B. Straps, rails, posts, and braces shall be constructed on the secure side of the fence. Fabric shall be placed on the opposite (non-secure) side of the fence.
C. Fence installer to verify underground utility locations or other obstructions prior to fence installation.
D. Post Spacing: Space line posts at intervals not exceeding ten feet.
E. Terminal posts (end, corner and gate posts) shall be set at the beginning and end of each continuous length of fence and at abrupt changes in vertical and horizontal alignments (30 degrees or more).
F. Post Setting:
    1. Set terminal, gate and line posts plumb in concrete footings.
        a. Footings to be:
            1) 12” (min.) diameter for intermediate (line) posts.
            2) 16” (min.) diameter for end and corner posts.
            3) 16” (min.) diameter for gate posts 4” OD and less.
            4) 24” (min.) for gate posts over 4” OD.
        b. Bottom of footings to be:
            1) 42” (min.) below grade for 4” OD posts.
            2) 46” (min.) for 6 5/8” OD posts.
            3) 52” (min.) for 8 5/8” OD posts.
    2. Set bottom of posts 6” above bottom of footings. Trowel top of footings with a 1” (min). to 2” (max.) crown to direct water away from posts. Top of crown to be 2" above grade. Footing to be uniform size full depth without flair at top of grade to prevent frost heave. Drill holes in firm, undisturbed or compacted soil. Place concrete around posts in a continuous pour and vibrate or tamp concrete around posts. Check each post for vertical and top alignment and hold in position during concrete placement.
G. Bracing: Brace gate and terminal posts back to adjacent line posts with horizontal brace rails at mid-height of fabric and diagonal truss rods. Brace line posts every 90 feet.
    1. Where fence turns corner or bends in excess of 30 degrees horizontally or vertically, provide corner post complete with bracing.
H. Tension Wires: Stretch from end to end of each stretch of fence. Fasten to outside of line posts with tie wires. Attach to fabric with hog rings at 24" O.C. The tension wire shall be taut and free of sag:
    1. Top Tension Wire: Install within the top 6” of the fabric.
    2. Bottom Tension Wire: Install within the bottom 6” of the fabric.
I. Fabric: Pull fabric taut with bottom salvage 2" (+/- 1/2”) above grade. Anchor fabric to framework so that fabric remains in tension after pulling force is released. Fasten to terminal posts with tension bars threaded through mesh and secured with tension bands at maximum 15" intervals. Tie to line posts with tie wires spaced at maximum 15" O.C and within 4” from top and bottom of fabric. Attach to top and bottom tension wires with hog rings at maximum 24" intervals. Allow minimum 24 hours after post setting.
J. Barbed Tape/ Concertina: As indicated on drawings, locate at every fence corner around the complex. Provide a roll strand from the top of the fence run vertically to the bottom and secure to the fence both top and bottom. In addition, provide Concertina wire at the top of each fence. Three (3) rolls of Concertina wire shall be attached at the bottom, middle and just below the top roll of Razor tape ran horizontally on the inside of the exterior fence (on the inside after tanglefoot); secured to the fence.
K. Gates:
    1. Install gates plumb, level and secure for full opening without interference. Anchor center stops and keepers in concrete footings. Adjust hardware for smooth operation and lubricate where necessary.

L. Fasteners: Install nuts for fittings, bands and hardware bolts on the inside of fence. Peen ends of bolts or score threads to prevent removal of nuts.
M. Grounding:
    1. Fences shall be grounded on each side of all gates, at each corner, at the closest approach to each building located within 50 feet of the fence, and where the fence alignment changes more than 15 degrees. Grounding locations shall not exceed 500 feet. Each gate panel shall be bonded with a flexible bond strap to its gate post. Fences crossed by powerlines of 600 volts or more shall be grounded at or near the point of crossing and at distances not exceeding 150 feet on each side of crossing. Ground conductor shall consist of No. 8 AWG solid copper wire. Grounding electrodes shall be 3/4 inch by 10-foot-long copper-clad steel rod. Electrodes shall be driven into the earth so that the top of the electrode is at least 6 inches below the grade. Where driving is impracticable, electrodes shall be buried a minimum of 12 inches deep and radially from the fence. The top of the electrode shall be not less than 2 feet or more than 8 feet from the fence. Ground conductor shall be clamped to the fence and electrodes with bronze grounding clamps to create electrical continuity between fence posts, fence fabric, and ground rods. After installation, the total resistance of fence to ground shall not be greater than 25 ohms.
N. Completed security fence and gate system shall not have openings or clearances greater than those specified.
O. Thoroughly clean up all excess materials and debris from erection operations.

3.2 CLEAN UP

A. Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

END OF SECTION

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SECTION 32 31 14

CANTILEVERED GATES

RFB #923904-01

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Cantilever slide gates, gate posts, operators and related hardware. (Gate widths and slide directions as indicated on the drawings).
B. See drawings for Electrically Operated Sliding Gate layout, details and additional notes.

1.2 REFERENCES

A. Underwriters Laboratory Gate Operator Requirements (UL 325).
B. ASTM F 2200 – Standard Specification for Automated Vehicular Gate Construction.
C. ASTM F 1184 – Standard Specification for Industrial and Commercial Horizontal Slide Gates, Type II, Class 2.
D. American Welding Society AWS D1.2 Structural Welding Code.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Company specializing in manufacturing the products specified in this section.
   2. Obtain gates, including accessories, fittings, and fastenings as complete units from a single source.

1.4 SUBMITTALS

A. Shop drawings: Indicate layout, spacing of components, gates, hardware, anchorage, and schedule of components. Include complete details of gate construction, gate height and post spacing dimensions.
B. Product Data: Provide data on finishes, fabric, posts, fittings and hardware, operators, pedestals, control panels, key switches, and electronic hardware.
C. Submit manufacturer's technical data and installation instructions for the gates, operators, pedestals, control panels, key switches and hardware.

1.5 CERTIFICATIONS

A. Certification of Performance Criteria:
   1. Manufacturer of gate system shall provide certification stating the gate system includes the following material components providing superior performance and longevity. Alternate designs built to minimum standards that do not include these additional structural features shall not be accepted.
      a. The gate track system shall be welded and keyed to interlock into gate frame member.
      b. Gate shall have a minimum counterbalance length of 50% opening width providing a 36% increase in lateral resistance (when compared to ASTM minimum of 40% counterbalance). The counterbalance section shall be filled with fabric or other specified material.
      c. Intermediate vertical members shall be provided with spacing between verticals to be less than 50% of the gate frame height.

d. Entire gate frame (including counterbalance section) shall include 2 adjustable stainless or galvanized steel cables (minimum 3/16") per bay to allow complete gate frame adjustment to maintain square and level orientation.
e. Gate truck assemblies shall be tested for continuous duty and shall have precision ground and hardened components. Bearings shall be pre-lubricated and contain shock resistant outer races and captured seals.
f. Gate truck assemblies shall be supported by a minimum 5/8" plated steel bolt with self-aligning capability, rated to support a 2,000 # reaction load.
g. Hanger brackets shall be hot dipped galvanized steel with a minimum 3/8" thickness. Brackets shall be gusseted.
h. Gate top track and supporting hangar bracket assemblies shall be certified by a licensed professional engineer in the State of Iowa to withstand a 2,000 lb. vertical reaction load without exceeding allowable stresses.
i. Gate shall be in compliance with ASTM F 2200, Standard Specification for Automated Vehicular Gate Construction per section 2.01 C.
j. Gate operator shall be in compliance with UL 325 as evidenced by UL listing label attached to gate operator.
k. The aluminum welders and welding process must be certified.

1.6 WARRANTY

A. Provide a minimum five-year manufacturer warranty for cantilever slide gates, operators and controls. Warranty shall begin at date of project Substantial Completion.

PART 2 – MATERIALS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. America's Gate Company: www.americasgatecompany.com
   2. Ameristar Security Products: www.ameristarfence.com
   3. Ametco Manufacturing Corporation: www.ametco.com
   4. The Tymetal Corporation: www.tymetal.com
   5. Approved equal per Section 01 60 00 – Product Requirements.
B. Basis of Design: Fortress Box Frame Cantilever Slide Gate – Tymetal Corporation

2.2 MATERIALS

A. Gate Height:
   1. Provide 12'-0" to top of mesh (without razor wire top guard) where specifically indicated on the drawings.
B. All new materials; used, re-rolled, re-galvanized or open seam posts or rails not acceptable.
C. Gate hinges, post tops, tension bar bands, and other parts shall be of steel or iron except that post tops, rail ends, ties and clips may be of aluminum.

2.3 COMPONENTS

A. Framework:
   1. Steel Pipe – Type II: SS 40 Steel pipe cold-formed and welded per ASTM F-1043, Group 1C or Group 4, having a minimum yield strength of 50,000 psi. The external zinc coating shall be Type B, zinc with polymer film, 0.90 oz./ft.2 minimum zinc coating with a chromate conversion and a verifiable polymer film. The internal coating shall be Type B, zinc 0.90 oz./ft.2 minimum or Type D, zinc pigmented, 81% nominal coating with 0.30 mils minimum thickness. Sizes as indicated.

2. Framework Sizes:

Description	Nominal Outside Diameter	Nominal Weight Per Foot (Lbs/Ft)	
		Type I	Type II
Gates:			
Sliding: All widths	4.00" *		8.65
Gate Frame:	2.00"		2.28
Gate Interior Bracing:	1.66"		1.83

* 4" posts shall be provided at both the counterbalance and latch side of the gate opening. Posts shall also have a bracket equipped with (1) pair 3" (76mm) UHMW guide wheels.

B. Accessories
   1. Post Tops: Pressed steel, cast iron, or cast aluminum alloy ornamental tops or combination tops with razor wire supporting arms, as required. The post tops shall fit over the outside of posts and shall exclude moisture from the posts.
   2. Rail and Brace Ends: Pressed steel, cast iron, or cast aluminum alloy, cup-shaped to receive rail and brace ends.
   3. Tension (Stretcher) Bars: Steel strip, Minimum 3/4" wide x 3/16" thick and not less than 2" shorter than fabric height. Provide one tension bar for each end and gate post, and two for each corner and pull post.
   4. Tension (Stretcher) Bar Bands: Pressed steel, minimum 300-degree profile curvature for secure fence post attachment
   5. Truss Rods: Steel rod, galvanized, 3/8" diameter merchant quality with turnbuckle.
   6. Tension Wire: Marcelled 7-guage steel wire with minimum coating of 0.80 ounces of zinc or 0.40 ounces of aluminum per square foot of wire surface and conforming to ASTM A 824.
   7. Barbed Tape: ASTM F 1910 430 Stainless Steel, .025 inch (.6mm) thick x 1" wide prior to forming, die stamped to produce 4 barbed points at 4 inches (100mm) on center. Tape cold clenched over stainless-steel core wire with minimum tensile strength of 220,000 psi (1,517Mpa). 1.2 inch (30.5mm) minimum length for each barb.

C. Concrete Mix:
   1. ASTM C94 Portland Cement concrete with maximum 3/4" aggregate having minimum compressive strength of 3,000-psi at 28 days.

D. Cantilever Slide Gates:
   1. Gate widths as indicated on plans (40-foot minimum clear opening width).
   2. Gate height to match fence height. Provide 12'-0" high gate (without razor wire top guard) where specifically indicated on the drawings.
   3. Cantilever slide gates shall be designed for manual operation by one person. Provide provisions for gate operator where indicated on drawings.
   4. Cantilever slide gates shall be factory assembled in one section.
   5. Gate frames: Gate frames shall be of welded construction, fabricated in accordance with ASTM F1184, Type II, Class 2, using galvanized steel tube or aluminum alloy extrusions.
      a. The primary members (top and bottom) shall be "P" shaped in cross section with no less than 2" on a side and weighing not less than 1.6 lb/lf. To maintain structural integrity this top member shall be "keyed" to interlock with a "keyed" track member.
      b. End vertical members of the gate frame shall be 2"x2", weighing not less than 1.1 lb/lf. Interior vertical members shall alternate between 1"x1" and 1"x2" in cross section, weighing not less than .52 lb/lf and .82 lb/lf respectively. The 1"x2" and 1"x1" intermediate vertical members shall be spaced at a distance not to exceed the overall height of the box frame. The gate shall be constructed in "box" form with the width between the frames measuring 24" from outside to outside. Between these frames there shall be a continuous series of 1"x1" diagonal and horizontal bracing with the diagonals welded at approximately 45 degrees to the frames.

c. The semi-enclosed "keyed" track shall be extruded from 6005A-T61 or 6105-T5 aluminum alloy, shall weigh a minimum of 2.9 lb/lf. A track member shall be located on each side frame. Welds to be placed alternately along the top and side of the track at 9" centers with welds being a minimum of 2" long.

6. Diagonal “X” Bracing: Provide 3/16" or 1/4” diameter stainless or galvanized steel cable throughout the entire gate frame. Bracing shall be as required to comply with the performance deflection criteria listed in ASTM F1184
7. Gate shall operate smoothly across the entire path of travel. Gate shall be designed to open or close by applying an initial pull force no greater than 40 lbs.
8. Support from semi-closed track aluminum, extruded, two self-aligning 4-wheel, ball bearing truck assemblies.
9. Gap protectors shall be provided and installed per ASTM F 2200.
10. Gate hangers, latches, brackets, guide assemblies, and stops: Malleable iron or steel, galvanized after fabrication. Provide a positive latch with provisions for padlocking.
11. Bottom guide wheel assemblies: Two pairs of rubber-tired guide wheels straddling bottom horizontal gate rail, allowing adjustment to maintain gate frame plumb and in proper alignment. Attach one assembly to each guide post.
12. Fabric:
    a. 9-gauge (min.) steel wire woven in a 2” diamond mesh, one-piece fabric width.
    b. Minimum breaking strength: 1290 lbf.
    c. Top and bottom selvages twisted and barbed.
    d. Include fabric at counterbalance per ASTM F2200.
13. Stainless Steel Straps (Hog Rings):
    a. Fabric to Intermediate (Line) Posts, Rails, and Braces: ASTM F626, 9-gauge galvanized steel. Minimum zinc coating 1.20 oz/ft².
    b. Fabric to Tension Wires: ASTM F626, 9-gauge galvanized steel. Minimum zinc coating 1.20 oz/ft².
14. Gate Locks: Waterproof, tamper-resistant, electrically operated with six tumbler mechanical release. Provide status indicator for lock position (locked or unlocked).
15. Catcher Assembly: Catcher shall be provided at both top and bottom of gate to prevent gate deflection.
16. Finish:
    a. Galvanized after weaving by hot-dip process to give a minimum of 1.2 oz. of zinc/sq. ft. of wire surface distributed over entire fabric, including cut ends, in accordance with ASTM A392 Class 1.
17. All welds on the gate frame shall conform to Welding Procedure Specification and Procedure Qualification Record to ensure conformance to the AWS D1.2 Structural Welding Code. All individual welders shall be certified to AWS D1.2 welding code.

E. Gate Operator:
1. Gate Operator shall be listed as approved to open and close the weight of gate and to provide convenience and security.
    a. Motor Size: 208V-1ph, UL 325 compliant for Class III and IV.
    b. Provide an integral disconnect switch.
2. Gate Operator shall have capability to be easily switched to “manual” mode to disengage from chain drive and allow for gate to be opened and closed by hand. Ability to switch to manual mode shall be inaccessible from the non-secure side of the gate to prevent unauthorized usage.
    a. Manual switch shall be provided inside of locked gate operator enclosure.
3. Gate Operator shall be rated and warranted for cold-weather climates.
4. Audio Alarm:
    a. This alarm shall have a dual function.
        1) The first function shall be as a warning prior to gate movement. When the motor control board recognizes a command, this alarm shall be activated three (3) seconds before the motor is energized, and the gate begins to move. This shall be continuously activated while the gate is in motion.

5. Entrapment Devices:
   a. Photoelectric through beams/photo eyes shall be installed to span the clear opening and gate path at the tail section.
6. See drawings for Electrically Operated Sliding Gate layout, details and additional notes.
7. Summary of Automatic Gate Operations:
   a. Fire Department Access:
      1) "Knox" Key Switch turned to "Emergency Open" to open. Program gate to stay open until closed by the Master Station (NCF Control Center).
   b. Owner Access:
      1) Radio to Master Station (NCF Control Center). Master Station Door Release Button to open and close.
   c. Exiting:
      1) IPI Radio to Master Station (NCF Control Center). Master Station Door Release Button to open. Auto-close timer to close.

PART 3 – EXECUTION

3.1 GENERAL INSTALLATION

A. Installation to conform to ASTM F-1184 standards for aluminum cantilever slide gates, Type II, Class 2. Automated gates shall comply with ASTM F2200 and UL 325.
B. Wire ties, rails, posts, and braces shall be constructed on the secure side of the gate. Fabric shall be placed on the opposite (non-secure) side of the gate.
C. Gate installer to verify underground utility locations or other obstructions prior to installation.
D. Gates:
   1. Install gates plumb, level and secure for full opening without interference. Anchor center stops and keepers in concrete footings. Adjust hardware for smooth operation and lubricate where necessary.
   2. Install operators, pedestals, control panels, key switches, and electronic hardware in accordance with manufacturer's instructions. Demonstrate operation of all equipment in the presence of the Owner to confirm that all requirements described in the "Summary of Gate Operations" above are met.
   3. Obstruction Sensing Systems:
      a. The inherent motor current sensors are part of the gate operator system and may not be removed or bypassed.
      b. The installation contractor shall be responsible for ensuring that appropriate external secondary entrapment protection devices be installed for the specific site conditions to protect against all potential entrapment zones. Proper operation of these safety devices shall be verified and training as to the operation and maintenance of these devices for the users and owners shall be documented.
E. Fasteners: Install nuts for fittings, bands and hardware bolts on the inside of gate. Peen ends of bolts or score threads to prevent removal of nuts.
F. Completed security gate system shall not have openings or clearances greater than those specified or detailed (or not greater than 6 inches, whichever is more restrictive) either through or under the fencing.
G. Thoroughly clean up all excess materials and debris from erection operations.

3.2 SYSTEM ACCEPTANCE & VALIDATION

A. Acceptance Test:
   1. Test each system function.
   2. Supply all equipment necessary for system adjustment and testing.
B. Test and Explain Safety Features:
   1. Each system feature and device are a separate component of the gate system.

2. Read and follow all the instructions for each component.
3. Ensure that all instructions for mechanical components, safety devices and the gate operator are available for everyone who will be using the gate system.
4. The warning signs shipped with the gate operator must be installed in prominent position on both sides of the gate.

C. System Validation:
1. The complete system shall be adjusted to ensure it is performing properly.
2. The system shall be operated for a sufficient period of time to determine that the system is in proper working order.
3. Ensure the owner is clear with regard to the safety points concerning the basic operational guidelines of the safety features of the gate operator system. These safety points are listed in the operator manual and must be read prior to system use.
4. Installer and customer shall complete Operated Gate System Installation Checklist (see operator manual).

3.3 SCHEDULE

A. At all gates, provide control panels, gate operator, handholes, conduit, and electrical wiring for partial installation and operation. Access controls cabling and mechanisms shall be provided under a separate contract.

END OF SECTION

SECTION 32 91 19

LANDSCAPE GRADING

RFB #923904-01

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Final grade topsoil for finish landscaping shown on Landscape Drawings.

1.2 RELATED SECTIONS

A. EARTHWORK: SECTION 31 20 00

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil: Fertile, friable loam, capable of sustaining vigorous plant growth, from well drained site free from flooding, not in frozen or muddy conditions; reasonably free from subsoil, clay lumps, roots, grass, weeds, stones larger than three-quarter (3/4) inch (19 mm) diameter, and foreign matter; acidity range (pH) of 5.5 to 7.5; containing minimum 4 percent and maximum 20 percent organic matter.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify building and trench backfilling has been inspected.
B. Verify subsoil base has been contoured and compacted.

3.2 SUBSOIL PREPARATION

A. Eliminate uneven areas and low spots.
B. Remove debris, roots, branches, and stones in excess of 1/2 inch (13 mm) in size. Remove subsoil contaminated with petroleum products.
C. Scarify subgrade to depth of 3 inches (75 mm), where topsoil is to be placed. Scarify areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.3 PLACING TOPSOIL

A. Place topsoil in areas to be seeded or sodded and planted, to thickness as scheduled.
B. Use topsoil in relatively dry state. Place during dry weather.
C. Fine grade topsoil eliminating rough and low areas. Maintain levels, profiles, and contours of subgrade.
D. Remove roots, weeds, and foreign material while spreading.
E. Manually spread topsoil close to building to prevent damage.
F. Lightly compact placed topsoil.
G. Leave site clean and raked, ready to receive seeding or sodding and landscape planting.

3.4 TOLERANCES

A. Top of Topsoil: Plus of minus 1/4 inch (6 mm).

3.5 PROTECTION

A. Protect landscaping and other features remaining as final work.
B. Protect existing structures, walls, sidewalks, and paving.

3.6 IMPORTING TOPSOIL

A. Use topsoil stockpiled during site stripping for respread.
B. If contractor finds stockpiles have insufficient quantity for respreads requirements, topsoil must be imported to site and included in bid.

3.7 SCHEDULE OF TOPSOIL DEPTHS

A. The following paragraphs identify compacted topsoil thickness for various locations.
   1. Ornamental Grass Planting Beds: Minimum 12 inches
   2. Native Plants and Grass Areas: Minimum 8 inches.
   3. Shrub Beds: Minimum 8 inches .
   4. Turf seeded and sodded Areas: Minimum 8 inches

END OF SECTION

SECTION 32 92 19

SEEDING

RFB #923904-01

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Description of Work
B. Warranty
C. Seeding Dates
D. Seedbed Preparation
E. Seed Preparation
F. Application of Seed
G. Watering
H. Reseeding
I. Cleanup
J. Acceptance

1.2 DESCRIPTION OF WORK

A. This section shall include preparation of the seedbed, furnishing and installing seed, fertilizer and mulch, maintenance, and guarantee for completed seeded areas, as specified in the contract documents.
B. The Contractor has the option of using pneumatic, hydraulic, or conventional seeding methods; unless specified otherwise in the contract documents.

1.3 PROTECTION OF PROPERTY

A. Protect existing conditions at the site against damage including the following:
   1. Take precautions to ensure that equipment, vehicles, and seeding operations do not disturb or damage existing grades, drives, pavement, utilities, plants and other facilities.
   2. Verify locations and depths of all underground utilities prior to excavation and report conflicts with new seeding operations.
   3. Repair, replace, and/or return to original condition any damaged item, without additional compensation.

1.4 SUBMITTALS

A. Submit from an established seed dealer or certified seed grower the certified blue tag from each container of seed of grass seed mixture dated within 9 months of delivery, indicating percentage by weight and percentage of purity, germination and weed seed for each grass, legume, and cereal crop stating botanical and common name of each species as specified in contract documents.
B. Submit certificates of inspection as required by governmental authorities and manufacturer's or vendor's certified analysis for soil amendments.
C. Submit written maintenance instructions recommending procedures for maintenance of seeded areas for one year, prior to final acceptance of the seeded areas.
D. Upon request the Contractor will provide Material Certifications to the Construction Manager.

1.5 QUALITY ASSURANCE

A. All seed shall have a certified blue tag from each container.

B. All materials to be in accordance with Iowa Seed Law and Iowa Department of Agricultural Regulations and shall be labeled accordingly.
C. All materials and method of operation shall be subject to inspection and approval by Construction Manager.

1.6 DELIVERY, HANDLING, AND STORAGE

A. Packaged materials shall be delivered in original, unopened, and undamaged containers.
B. Store and protect materials off the ground to prevent wetting and deterioration.
C. Deliver all seed in original containers.

1.7 SCHEDULING

A. Notify Construction Manager at least 3 days prior to start of seeding operations.
B. Perform seeding operations after grading and planting operations are complete as approved by the Construction Manager.

1.8 WARRANTY

A. A warranty is to be provided for completed seeded areas, starting upon the date of initial acceptance. The warranty is to guarantee completed seeded areas to provide a uniformly dense, live, and healthy stand of grass, free of weeds and undesirable grasses, debris, and free of eroded areas, bare spots, diseases, and insects at the end of the warranty period of one full year.
B. During warranty period, any defects in the seeded area and grass stand such as weedy areas, eroded areas and bare spots shall be corrected and reseeded as originally specified until all affected areas are accepted by the Jurisdictional Engineer; without additional compensation.
C. Repair and replace to original condition all damages to property resultant from the seeding operation and all damages as a resultant from the remedying of these defects, without additional compensation.

PART 2 - PRODUCTS

2.1 SEED

A. Provide fresh, clean, new crop, certified blue tag seed complying to tolerance for germination and purity and free of poa annua, bent grass, and free of noxious weed seed.
B. Mix seed to the specified proportions by weight by methods approved by the Engineer.
C. Seed Quality: The seed provided shall exceed the following minimum requirements of purity and germination stated on a certified blue tag.

KIND OF SEED	PURITY	GERMINATION
NATIVE GRASSES		PURITY (PLS)
Big Bluestem - Kaw, Pawnee, Roundtree, or Champ		30%
Little Bluestem - Blaze, Aldous, or Camper		30%
Switchgrass – Blackwell, Pathfinder, Cave-in-Rock, or		63%
Nebr. 28		30%
Indiangrass - Neb. 54, Oto, Holton Rumsey		30%
Sidecoats Gramma - Trailway, Butte, or El Reno		56%
Western Wheatgrass - Barton or Common		

2.2 SEED MIXTURES

A. Provide the certified blue tag seed mixture type and application rate as defined on the plans.

B. Type (1) Erosion Control Mixture:

Type of Seed	Application Rate lb/acre
Little Blue Stem	3
Side Oats Gramma	4
Indiangrass	4
Switchgrass	1.5
Big Blue Stem	3
Western Wheatgrass	4.5
Oats	1/2 bushel

2.3 FERTILIZER

A. Fertilizer shall comply with the rules of the Iowa Department of Agriculture and as follows:
   1. The grade of fertilizer will be identified according to the percent nitrogen (N), percent of available phosphoric acid (P_2O_5), and percent water soluble potassium (K_2O), in that order, and approval will be based on that identification.
   2. All fertilizer shall be furnished from an established fertilizer dealer and guaranteed percentage analysis shall be provided by the fertilizer supplier on each container with the proper scale weight records.
   3. Fertilizer shall be of a type that can be uniformly distributed by the application equipment. Fertilizer may be furnished in a dry or liquid form.
   4. When applied dry, the fertilizer shall be a granular, non-burning chemically combined product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer. Granular or pellet form shall be uniform in composition, dry, and free flowing without caking or other damage not suitable for use.
   5. When applied in a liquid form, fertilizer may be chemically combined or may be furnished as separate ingredients.
   6. Upon request of the Contracting Authority, the Contractor shall provide a test of the fertilizer for conformance with the required analysis with no additional compensation; a tolerance of 1.0 percentage point plus or minus of that specified will be considered to be in substantial compliance.

2.4 WATER

A. Water shall be free of any substance harmful to seed growth.
B. The Contractor shall provide water, equipment, methods of transportation, water tanker, hoses, sprinklers, and labor necessary for the application of water.

2.05 MULCH

A. Hydraulic Seeding:
   1. The material shall be a natural or cooked cellulose fiber processed from whole wood chips (no recycled material) which will disperse readily in water to form a homogeneous slurry and remain in such state when agitated in the hydraulic mulching unit.
   2. The homogeneous slurry of material and water shall be capable of being applied with standard hydraulic mulching equipment.
   3. The slurry shall be dyed greed to facilitate visual metering during application with said material or homogeneous slurry having no growth or germination-inhibiting factors, being completely non-injurious to plant or animal life and having no toxic effect when combined with seed, fertilizer, and water.

4. When applied, the wood cellulose fiber slurry shall be free from weeds or other foreign matter toxic to seed, consisting of a classification of fibers with a minimum of 30 percent having an average length of 0.15 inches or passing a Clarke Classifier 24 mesh screen, will form an absorptive mat, but not a plant-inhibiting membrane, which will allow moisture to percolate into the underlying soil.
5. Mulch shall have a water-holding capacity of not less than 9 pounds of water per pound of fiber.
6. The wood cellulose fiber shall have an equilibrium air dry moisture content of 12 percent or less a time of manufacture, as defined by the pulp and paper industry standards, and shall have a ph range of 4.0 – 5.5.
7. It shall be packaged in new labeled containers and be applied at a rate of 1,800 pounds per acre (41.3 lb/1,000 sf).

B. Tackifier (Hydraulic Seeding):
1. The mulch shall include a colloidal polysaccharide tackifier which shall be adhered to the fiber to prevent separation during shipment and avoid chemical co-agglomeration during mixing within the hydraulic mulching equipment.
2. The material shall be homogeneous within the slurry and shall have no growth or germination-inhibiting factors nor any toxic effect on plant or animal life when combined with seed or fertilizer.
3. The tackifier shall be applied at a minimum rate of 50 pounds per acre (0.11 lb/sq) and shall be packaged in new labeled containers.

C. Conventional Seeding:
1. Material used as mulch may consist of straw (oats, wheat, barley, or rye).
2. Hay (bromegrass, timothy, orchard grass, alfalfa, or clover) shall not be used to mulch areas where lawn mixtures are seeded but may be used to mulch areas where erosion control and perennial ground covers are seeded.
3. All material used as mulch will be free from all noxious weed, seed-bearing stalks, or roots and shall be inspected and approved by the Engineer prior to its use.
4. Other materials, subject to the approval of the Engineer, may be used.

D. Pneumatic Seeding: Use compost meeting the following requirements:
1. Derived from a well-decomposed source of organic matter.
2. Produced using an aerobic composting process, meeting Code of Federal Regulations (CFR) 503 for time, temperature, and heavy metal concentrations.
3. No visible admixture of refuse or other physical contaminants, nor any material toxic to plant growth.
4. Certified by the U.S. Composting Council's Seal of Testing Assurance (STA) program.
5. Conforms to chemical, physical, and biological parameters of AASHTO MP 10-03, with the following additional requirements:
   a. Follow U.S. Composting Council's TMECC guidelines for all testing.
   b. Organic Matter Content: 30% minimum.
   c. pH: between 6.0 and 8.0.
   d. Maturity (growth screening): Minimum 90% emergence for all compost to be vegetated.
   e. Particle Size:

Sieve Size	Percent Passing*
2"	100
1"	90-100
3/4"	65-100
3/8"	0-75
*6-inch maximum particle length.	

2.6 STICKING AGENT

A. A sticking agent shall be a commercial material recommended by the manufacturer to improve adhesion of inoculant to the seed.
B. For small quantities, less than 50 pounds, the sticking agent need not be a commercial agent, but it must be approved by the Construction Manager and must be applied separately prior to application of inoculant.

PART 3 - EXECUTION

3.1 AREA OF SEEDING

A. Areas to be seeded shall conform to the limits shown on the construction plans and contract documents. Areas disturbed outside the contract limits approved for seeding shall be seeded by the Contractor at no additional compensation.
B. Where weeds have developed over the area to be seeded, due to delays in permission for the seeding operations to start, at no fault of the seeding contractor, weed removal shall be an additional compensation; except when the cause is due to rain delays.

3.2 SEEDING DATES

A. Normal spring seeding dates shall be between March 1 and May 31. Commence only when ground temperatures are 55 degrees Fahrenheit or greater. Normal fall seeding dates shall be between August 20 and September 30.
B. Dormant seeding dates shall be between November 1 and March 1, with permission of Construction Manager.
C. Install stabilizing crop seed type specified in contract documents between June 1 and August 15.
D. Fall seeding will include only grass seed.
E. At the option and at the full responsibility of the Contractor, seeding operations may be conducted under unseasonable conditions. The final results shall be as specified and guaranteed without additional compensation should the seeded areas require reseeding.

3.3 SEEDBED PREPARATION

A. Limit preparation of seedbed to areas which will be seeded immediately upon completion.
B. Remove all weeds and weed debris where weed growth has developed, in the opinion of the Engineer. Weed growth and weed debris removal process shall be approved by the Engineer and shall be done without additional compensation.
C. The Contractor shall shape and fine grade to remove washes or gullies, water pockets, and irregularities to provide a smooth, firm, and even surface true to grade and cross-section.
D. Disk or rototill and cultivate seedbed to a minimum 3-inch depth to a fine texture and without soil lumps. Where the area is inaccessible to machinery, it shall be prepared by hand to a minimum depth of 1 1/2 inches after the fertilizer has been applied.
E. Application of Fertilizer:
    1. Apply fertilizer after shaping and fine grading and prior to the combined tillage and rock-removal operations. On areas inaccessible to machinery, the fertilizer may be spread prior to tillage and cultivated seedbed preparation and uniformly mixed into the top 1 1/2 inches of soil.
    2. Fertilizer shall be spread with a mechanical spreader or sprayer uniformly to all areas to be seeded at the minimum rate specified herein. The fertilizer shall be tilled into the soil to a minimum depth of 3 inches.

3. The Contractor shall be permitted to substitute other fertilizer containing analysis percentages different from those specified, provided that the minimum amounts of actual nitrogen (N), phosphate (P), and potash (K) per acre are supplied and that in no case shall the total amount per acre of the three fertilizer elements (N), (P), or (K) be exceeded by 30 percent of the following minimum amounts.
4. Conventional Seeding:
    a. Apply 13-13-13 commercial fertilizer or the equivalent units of nitrogen (N), phosphate (P), and potash (K) at the rate of 450 pounds per acre. A minimum of 40 percent of the total nitrogen (N) shall be water insoluble nitrogen.
5. Hydraulic Seeding:
    a. Apply 6-24-12 commercial fertilizer or the equivalent units of nitrogen (N), phosphate (P), and potash (K) at the rate of 200 pounds per acre prior to seeding.
    b. In addition to the above, a minimum of 100 pounds per acre of a 20-26-6 fertilizer in which a minimum of 50 percent of the total nitrogen is water insoluble nitrogen shall be applied as part of the seed, fertilizer, mulch, and water slurry.
6. Pneumatic Seeding:
    a. Based on the compost nutrient analysis, supply any additional commercial fertilizer necessary to meet the 13-13-13 units of nitrogen, phosphate, and potash at the rate of 450 pounds per acre as the compost is applied.
7. Tilling:
    a. After fertilizer has been applied, a mechanical rock picker shall be used on areas accessible to machinery to mix fertilizer in the soil to a depth of 3 inches and to remove all rocks, debris, and solid non-soil material larger than 1 1/2 inches in diameter from the upper 3 inches of the soil. A spring tooth cultivator may be used in lieu of a rock picker. The rock shall then be removed by hand after each use of the cultivator--the process to be repeated until the soil is relatively free of rock as determined by the Engineer.
    b. Remove all rock remnants from rock piles used on project smaller than 1 1/2 inches.
    c. The seedbed shall then be smoothed with a cultivator-type tillage tool having a rake bar--such as the Roseman rake (or a rock rake such as the York) gauged by rear gauge wheels or by a blade gauged by a landscape roller (such as the Viking roller blade).
    d. Tilling shall be parallel to the contours.
    e. Ruts and wheel tracks in the seedbed from seedbed preparation are to be removed prior to seeding. This must be completed just prior to seeding and the work approved by the Engineer before the seeding application.

3.4 SEED PREPARATION

A. Inoculated seed shall not be exposed to direct sunlight for more than 1/2 hour. Seed which is not sown within 8 hours after inoculation shall be reinoculated prior to use.
B. Additional inoculation is required for preinoculated seed. Preinoculated seed will be considered as inoculated at not more than two times the rate specified by the inoculant manufacturer.

3.5 APPLICATION OF SEED

A. Prior to seeding, the seedbed shall be inspected and approved by the Jurisdictional Engineer.
B. Conventional Seeding:
    1. Sowing:
        a. On all areas accessible to machinery, all grasses shall be sown with a drop-type seeder attached to a landscape roller in such a manner that the seed is applied and then covered by rolling which firms the soil.
        b. On areas inaccessible to field machinery, the use of cyclone seeders will be permitted, but no other hand-seeding methods will be accepted.
        c. The application of grass and legume seed with hand seeders on early spring work must be performed as separate operations. No mixing of the two types of seed will be permitted.

2. Mulching:
   a. All seeded areas shall be mulched within 24 hours after the seed is sown. The mulch shall be uniformly distributed over the required areas at a rate of 2 tons of dry mulch per acre.
   b. The mulch shall then be worked into the soil with a mulch tucker which shall be designed to anchor the mulch into the soil. The tucker shall be designed to anchor mulch into soil by means of dull blades or disks.

C. Hydraulic Seeding:
1. All material, seed, fertilizer, mulch, and tackifier shall be placed in hydraulic-mulching equipment specifically manufactured for hydraulic seeding and mulching.
2. The hydraulic equipment, pump, and application process shall not damage or crack seeds.
3. Materials shall be mixed with fresh potable water using a combination of both recirculation through the equipment's pump and mechanical agitation to form a homogeneous slurry.
4. It shall be applied evenly over all specified areas in a workmanlike manner at component material rates specified.
5. Site cleanup shall be considered part of application and shall include the removal of hydraulic mulch slurry from buildings, landscaping, sidewalks, and any other areas not specified for application. All debris resulting from this application shall be removed from the site.

D. Pneumatic Seeding:
1. Place all material, seed, fertilizer, and compost in equipment with a calibrated seeder attachment specifically designed for pneumatic seeding. Do not apply fertilizer with native grass, wildflower, or wetland seeding.
2. Apply the compost evenly over specified areas at material rates specified.
3. Inject seed and fertilizer into the top 1/4 inch to 1/2 inch of compost during application with a calibrated seed injector at the specified rate.

3.6 WATERING

A. All seeded areas shall be kept moist at all times. The areas shall be artificially watered a minimum of twice a day (early morning and evening) every day for the first week after seeding is completed.
B. For the second and third weeks after seeding, the seeded areas shall be artificially watered once a day (early morning or evening).
C. The quantity of water used shall be adequate to keep the soil and mulch moist to a depth of 1 inch and ensure growth of the seed. If natural rainfall is adequate to keep the soil and mulch moist as stated above, artificial watering may be deleted.
D. Any area seeded in the month of May shall be maintained for an additional 3 weeks. The seeded areas shall receive a minimum of 1 inch of water each week (either natural, artificial, or combination) for the fourth, fifth, and sixth week after seeding.

3.7 RESEEDING

A. When all work related to seeding on an area has been completed but is washed out or damaged prior to final acceptance of the seeding area and that area involves seeding in combination with mulching or fertilizing or both, the area shall be reseeded, refertilized, and remulched at the contract unit price or prices when so ordered by the Jurisdictional Engineer.
B. Fertilized or seeded areas damaged by rain prior to required mulching or areas where the mulch is not tucked shall be refertilized or reseeded or both at a rate not to exceed the specified rate, as designated by the Jurisdictional Engineer, without additional compensation.

3.8 CLEAN UP

A. Perform cleanup operations during installation of work and upon completion.
B. Remove from site all excess materials, debris, and equipment.
C. Hose down and/or broom clean all paved surfaces.

D. Repair any damage resulting from seeding operations.
E. Remove hydraulic slurry from buildings landscaping and plantings, mulch, sidewalks, pavement, and any other areas not specified for application.

3.9 FINAL ACCEPTANCE

A. The areas seeded shall be given an initial acceptance, prior to the warranty period, based upon the following criteria:
   1. All requirements for the completed installation and a minimum of 60 days maintenance have been provided.
   2. Seeded areas shall be in a live, healthy, growing, and well-established condition without eroded areas, bare spots, free of weeds, undesirable grasses, disease, or insects.
   3. Reseeding operations are completed.
B. Final acceptance may be given by the Engineer upon fulfillment of all items completed as required under the warranty.

END OF SECTION

Appendix

A. Geotechnical Data - Geotechnical Exploration PN 251210 (24 Pages)

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ALLENDER BUTZKE ENGINEERS INC.
GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q. C.

JULY 3, 2025 **PN 251210**

GEOTECHNICAL EXPLORATION

NCF IPI HOMES FOR IOWA FACILITY PROJECT
307 S 60TH STREET
NEWTON, IOWA

PERFORMED FOR

SAMUELS GROUP
2929 WESTOWN PARKWAY
WEST DES MOINES, IOWA

3660 109TH STREET • URBANDALE, IOWA 50322 • PHONE 515-252-1885 • FAX 515-252-1888

ALLENDER BUTZKE ENGINEERS INC.
GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q. C.

July 3, 2025

Samuels Group
2929 Westown Parkway
West Des Moines, Iowa
Attn: Jerry Dehnke

RE: Geotechnical Exploration
NCF IPI Homes for Iowa Facility Project
307 S 60th Street
Newton, Iowa
PN 251210

Dear Mr. Dehnke:

As authorized by you, Allender Butzke Engineers Inc. (ABE) has completed the geotechnical exploration for the above referenced project. The geotechnical exploration was conducted to evaluate physical characteristics of subsurface conditions with respect to design and construction of this project. The enclosed report summarizes the project characteristics as we understand them, presents the findings of the borings and laboratory tests, discusses the observed subsurface conditions, and provides geotechnical engineering recommendations for this project.

We appreciate the opportunity to provide our geotechnical engineering services for this project. If you have any questions or need further assistance, please contact us at your convenience. We are also staffed and equipped to provide construction testing and inspection services on this project as well as environmental site assessments.

Respectfully submitted,
ALLENDER BUTZKE ENGINEERS INC.

Stacy G. Brocka, P.E.
Principal Engineer

LICENSED PROFESSIONAL ENGINEER STACY G. BROCKA 14203 IOWA	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. 7/3/2025 Stacy G. Brocka, P.E. License Number 14203 Date My license renewal date is December 31, 2025. Pages covered by this seal: All Pages.

1 Email Above

GEOTECHNICAL EXPLORATION

NCF IPI HOMES FOR IOWA FACILITY PROJECT
307 S 60TH STREET
NEWTON, IOWA

PN 251210

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GEOTECHNICAL EXPLORATION

NCF IPI HOMES FOR IOWA FACILITY PROJECT
307 S 60TH STREET
NEWTON, IOWA

PN 251210

July 3, 2025

PROJECT INFORMATION

NCF IPI Homes for Iowa, with design assistance from Samuels Group and Farnsworth Group, is planning the construction of an approximately 20,600 square foot warehouse, a security gate, and pre-fabrication construction area at their existing NCF IPI site on 307 S 60th Street in Newton, Iowa. New pavements are proposed at the security gate and a paved apron is proposed on the north side of the warehouse. Preliminary plans by Farnsworth Group indicate that the finish floor of the warehouse will be at elevation 786.00 feet. We assume the warehouse will generate light to moderate loads with maximum wall loads of 3 kips per lineal foot and maximum column loads of 100 kips. The site where the proposed warehouse will be constructed is currently a baseball diamond and is gently sloping. Based on the grading plan, it appears that cut depths and fill thicknesses on the order of 4 to 6 feet may be necessary to achieve the desired final grades.

FIELD EXPLORATION

The requested four soil borings were conducted at this site to depths of 20 feet below existing grades on June 11, 2025. Approximate locations of the borings are shown on the enclosed Site Plan. Boring locations were staked in the field by Samuels Group personnel prior to utility locates and drilling. The drilled boring locations and ground surface elevations were determined by ABE using GPS Survey equipment. The boring surface elevations, indicated on the enclosed Boring Logs, were Iowa Real-Time Network (RTN) derived. Methods of drilling, sampling, standard laboratory testing, and classifying of subsurface materials are discussed in the Boring Log Description/Legend pages of the Appendix. Temporary piezometers were installed in Boring Nos. 1 and 4 to obtain longer-term groundwater level readings.

SUBSURFACE CONDITIONS

Soil Profile

Detailed descriptions of soils encountered by this exploration are provided on the Boring Logs enclosed in the Appendix. The Profile of Borings (Plate A-1) presented in the Appendix depicts the relative deposit elevations in the borings. Unless otherwise indicated, the depths of soil stratum and groundwater levels are referenced from below the top of existing ground at the individual boring locations at the time of drilling.

Cohesive alluvium consisting of lean clay (CL) was encountered at the surface of all borings. The lean clay alluvium was very dark brown to brown, brown gray, and gray, and damp to very moist. The lean clay alluvium extended to depths of 7 and 11.5 feet in Boring Nos. 1 and 2 while Boring Nos. 3 and 4 terminated in the cohesive alluvium near a depth of 20 feet. Very dark gray to gray-brown fat clay (CH) cohesive alluvium was present below the lean clay in Boring No. 1 to a depth of 13.5 feet. Brown lean to fat clay (CL-CH) cohesive alluvium was present below the lean clay in Boring No. 2 to a depth of 14 feet.

Granular alluvium consisting of gray and brown silty fine to medium sand (SM) underlaid the cohesive alluvium in Boring Nos. 1 and 2. These two borings terminated in this granular alluvium near a depth of 20 feet.

Groundwater Level Observations

The borings were monitored during and shortly after drilling operations to detect moisture seepage and groundwater accumulation. The results of our groundwater level observations are noted on the Boring Logs enclosed in the Appendix.

During drilling operations, saturated sand was observed near depths of 14.5 and 16 feet in Boring Nos. 1 and 2, respectively. Groundwater accumulation was observed at similar depths in Boring Nos. 1 and 2 at the completion of drilling operations while Boring Nos. 3 and 4 were dry. These short-term water levels are not necessarily a true indication of the groundwater table. Longer-term observations at 13 days were conducted in Borings 1 and 4 in the temporary piezometers. The 13-day groundwater accumulation was observed near 2 feet below existing grade in Boring No. 1 while Boring No. 4 was dry. Further long-term observations would be necessary to accurately define groundwater variations at this site. Fluctuation of groundwater levels can occur due to seasonal variations in the amount of rainfall, surface drainage, subsurface drainage, site topography, irrigation practices, and ground cover (pavement or vegetation).

ANALYSES AND RECOMMENDATIONS

Expansive Soil

The lean to fat clay (CL-CH) and fat clay (CH) portions of the cohesive alluvium encountered in Boring Nos. 1 and 2 after depths of 7 to 11.5 feet are moderately plastic and considered to be moderately expansive. These soils are subject to moderate volumetric change with changes in soil moisture content which can cause movement and distress to lightly loaded floor slabs and pavements. The most severe problems occur where higher clay content soils (CL-CH, CH) are in a natural state of low moisture or are highly compacted at moisture contents near or below optimum moisture content on a relatively incompressible base. Subsequent moisture content increases below the floor slab or pavement after construction then cause the moderately expansive soils to swell appreciably. If the moisture content does not fluctuate much, then the soil swelling and heave will be minor. It is advisable not to construct floor slabs, pavements, or lightly loaded footings within or immediately above the moderate to highly plastic soils.

Based on the depth of these soils, the moderately expansive soils should not adversely affect structures at this site unless the moderately expansive soils are present within 3 feet of movement sensitive structures.

Site Preparation

Cut-and-fill construction will be performed at this site to achieve the desired final grades. Prior to the placing of concrete floors or pavements on this site, or before any fill is placed, the organic and loose materials in addition to all vegetation must be stripped. We expect that a minimum stripping depth of 6 inches will be required. The stripping depths may vary due to localized variations in vegetation cover and subgrade stability. The strippings could be used for landscaping purposes in non-critical areas where support for foundations, floor slabs, and pavements is not required. The subgrade should then be proof-rolled to delineate zones of soft soils present near the surface which may require additional removal or compaction.

Site Grading

We recommend that low plasticity cohesive (Liquid Limit of 45 or less and Plasticity Index of 23 or less) or cohesionless soils, free of rubble and organics, be used as compacted fill. Existing soil such as the lean clay (CL) alluvium would be suitable soil types for general fill applications. The following Table A lists recommended minimum compaction requirements for cohesive and cohesionless fill materials in specific applications. For cohesive soils, moisture contents within a range of -1 to +4 percent of the material's optimum moisture content are necessary to achieve the

desired fill qualities. Soil compacted closer to its optimum moisture content will exhibit greater stability under repeated construction traffic.

TABLE A
RECOMMENDED DEGREE OF COMPACTION GUIDELINES

Construction Application	Standard Proctor (ASTM D698) Cohesive Soil	Standard Proctor (ASTM D698) Cohesionless Soil	*Relative Density (D4253 & D4254) Cohesionless Soil
Class 1	95%	98%	70%
Class 2	90%	93%	45%
Class 3	85%	88%	20%

Class 1 - Subgrade for building foundations, slabs-on-grade, pavements and other critical backfill areas.

Class 2 - Backfill adjacent to structures not supporting other structures - Minor subsidence possible.

Class 3 - Backfill in non-critical areas - Moderate subsidence possible.

*Use Relative Density technique (ASTM D4253 & D4254) where Standard Proctor technique (ASTM D698) does not result in a definable maximum dry density and optimum moisture content.

The on-site soils can be excavated utilizing conventional excavation equipment. Granular soils can generally be suitably compacted with vibratory compaction equipment whereas cohesive soils are more suitable for compaction with sheepsfoot or pneumatic type compactors. Care should be exercised in properly backfilling and compacting all trenches, especially utility trenches under or adjacent to the pavement. Loosely compacted or sand backfilled trenches can collect surface water and inadvertently direct it to the pavement subgrade and cause softening of the soil as well as increasing frost heave potential.

The contractor should be aware that very moist and softer lean clay (CL) alluvium which appears to have higher silt content can be easily disturbed by construction traffic and may not provide adequate support for heavy construction equipment, especially in deeper cut areas under repeated traffic loading. Therefore, low impact excavation methods, such as top loading with excavators may be required in deeper cut areas to reduce disturbance and deterioration of these softer soils. High construction traffic areas will require periodic repair of disturbed or loosened soils.

At the time of this geotechnical exploration, moisture content of the cohesive alluvium deposits was generally near or above the recommended moisture content range for compaction. Depending upon precipitation levels prior to and during construction, adjustment of soil moisture content may be required in order to lower or raise the moisture to within the recommended moisture content range. Controlled wetting and discing may be necessary to raise soil moisture content of dry soils. Discing and aeration is generally the most economical method to lower soil moisture content, if climatic conditions allow. Chemical modification (drying) of very moist soils with Portland cement or quicklime can be accomplished if construction scheduling does not permit field drying. Common chemical modification methods may not be reactive when temperatures are near or below 40° Fahrenheit if grading or fill placement at the site will be conducted during colder weather.

Excavation Stability and Dewatering

Boring information indicates shallow excavations at the site for foundations and utilities will encounter predominately cohesive soils with no wet sand seams or layers. It is expected that the water seepage can be controlled by permitting it to drain into temporary construction sumps and be pumped outside the perimeter of the excavations.

The extent of bracing or sloping of open cut excavations will be dependent upon depth of cut, groundwater conditions, soils encountered, length of time the excavation will be open, area available for excavation and local governing regulations. Predominately cohesive soils may appear to stand nearly vertical in shallow excavations for short periods of time. However, soil creep, surcharge loads, precipitation, subsurface moisture seepage, construction activity vibrations and other factors may cause these soils to cave within an unpredictable period of time. Excavations encountering sand may tend to cave rapidly, especially if water is flowing through the sand. Unstable granular excavation walls may also cause surrounding cohesive soils to become unstable. Temporary shoring, flattening of the excavation slopes or use of trench boxes may be required to maintain a safe condition. Determining the appropriate OSHA classifications of the soil types encountered and implementing the required provisions for sloping, shoring, and bracing of excavations throughout the project during construction are the responsibility of the contractor per OSHA.

Slope Stability and Drainage

Based on soil boring information and our experience with subsurface conditions in the area, cut slopes constructed at 3:1 (H:V) or flatter in the majority of on-site soil types are generally stable if not subject to moisture seepage. Where moisture seepage is encountered during earthwork operations or where cuts extend below the seasonal high groundwater table, it may be necessary to install subsurface drainlines uphill of the potential seepage areas in order to intercept

groundwater before it exits the slope. The following Figure No. 1 depicts a typical interceptor drainline cross-section. Ongoing, unmitigated moisture seepage on the slopes can lead to erosion, sloughing, and wet areas that can be difficult to build on as well as mow and maintain.

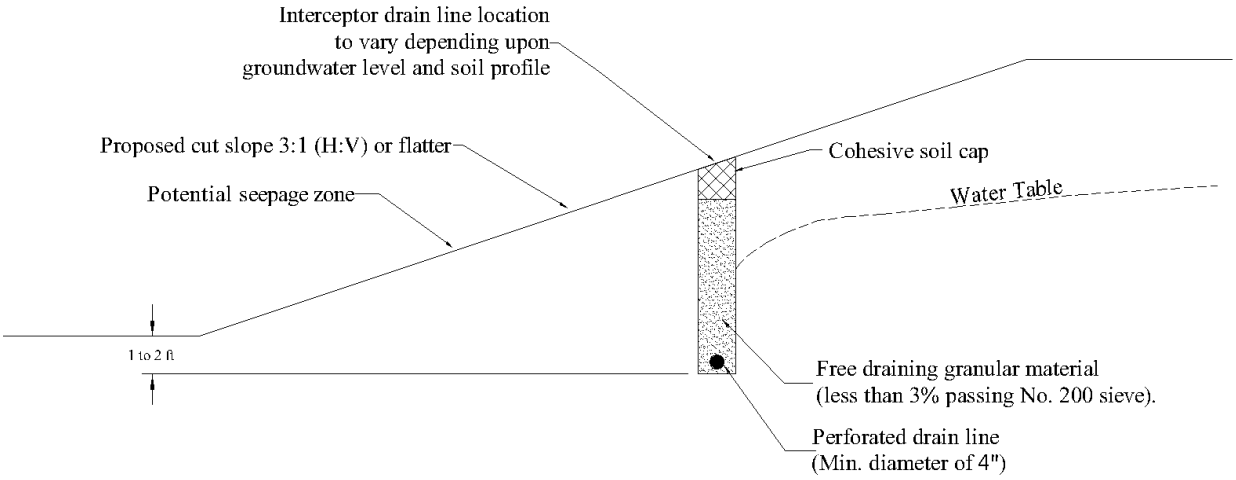


Figure No. 1 – Typical interceptor drainline cross-section

Foundation Design

In our opinion, newly placed cohesive engineered compacted fill required achieve the desired final grades and suitable natural soils can provide adequate support for the proposed structure. We recommend that continuous and isolated spread foundations bearing on suitable soils be proportioned for a maximum net allowable soil bearing pressure of 1,500 pounds per square foot. We estimate long-term total settlement due to the assumed structural loads will be less than 1 inch and differential settlement may be on the order of ½ of the total settlement when foundations bear on newly placed engineered compacted fill and suitable natural soils.

Continuous foundations should be adequately reinforced to limit deflections caused by non-uniform soil support characteristics. All exterior foundations and foundations in unheated areas should be placed a minimum of 3.5 feet below final grade to provide protection against frost penetration and reduce movements associated with changes in soil moisture content. The on-site cohesive soils and newly placed cohesive fill would be suitable for trench foundations. Footing excavations should be kept free of water accumulation to prevent softening of subgrade soils.

Observations and test probing of the foundation subgrade soils should be conducted by an ABE geotechnical engineer to determine that the soils are compatible with the design criteria. If zones of soft or otherwise unsuitable soils are encountered at foundation level, we recommend that footings be extended to bear on firmer soils or an over-excavation and compacted backfill

procedure be implemented. Over-excavations should extend 9 inches laterally in each direction beyond the foundation edges for each foot of over-excavation depth.

Floor Slab Support

Interior floor slabs can be adequately supported on a minimum of one foot of reworked inorganic existing soils or engineered compacted fill required to provide the desired final grades. The floor slabs can be designed for a modulus of subgrade reaction value of 100 pounds per cubic inch when bearing on a minimum of one foot of prepared subgrade. Testing, observations and probing should be conducted during construction to delineate zones of soft soils which may require repair prior to concrete placement.

Pavement Subgrade Preparation

Uniform subgrade support is critical in pavement performance. We recommend that the prepared subgrade depth be at least 1 foot deep after fine grading or trimming and extend 2 feet beyond the edge of the pavements. The recommended 1 foot of compacted subgrade will necessitate undercutting and reworking existing subgrade soils.

Subgrade preparation to one-foot depths for some soil types is generally adequate, but isolated zones of very moist and/or low clay content, such as the soils at this site, may not be stable under heavy construction vehicle loads which may require stabilization to depths of 2 feet or more for paving purposes only (including over-excavation and replacement with more cohesive soils). If subgrade conditions deteriorate, placement of a thicker granular (rock) subbase or the placement of a geogrid below the granular rock or stabilization of the soil subgrade with Portland cement could be constructed to support construction traffic and the final pavements.

Final subgrade should be proof-rolled to delineate zones of loose soils present near the surface which may require additional removal or compaction. The subgrade support should be relativity uniform with no sudden changes in the degree of support to provide satisfactory pavement performance. Transition between cut and fill areas, varying soil types, and improper subgrade preparation such as inadequate proof-rolling and compaction can result in non-information subgrade support.

Subgrade preparation should be completed shortly before paving operations commence and is to be maintained in suitable condition until paved. Damages caused by construction traffic or deterioration due to adverse weather are to be repaired prior to paving.

Depending upon conditions encountered at the time of construction, it may be necessary to moisture condition existing soils to achieve the recommended moisture content range of -1 to +4

percent of optimum moisture content. Soils compacted closer to optimum moisture content will exhibit greater stability under construction traffic loading. Suitable cohesive soil compacted to a minimum of 95 percent of maximum dry density determined by ASTM D698 would provide a design support capability equivalent to a CBR value of 3 or a modulus of subgrade reaction value of 100 pounds per cubic inch. Subgrade compaction, moisture content and depth should be tested by an ABE representative.

Subsurface Pavement Drainage

Based on the anticipated seasonal high groundwater levels at this site, it is our opinion that subsurface pavement drainage would not be necessary in areas of fill but would be beneficial for extending the life of pavements in areas of cut of 2 feet or more. Subsurface drainage is also recommended if a granular subbase is utilized beneath the pavement.

Where permeable subbase is utilized, it should be hydraulically connected to the free draining granular backfill (similar to Iowa DOT Specification 4131) in the subsurface drains. Subsurface drainage may be accomplished with the installation of drainlines similar to the Iowa DOT detail DR-303 or Iowa SUDAS Figure 4040.231. In parking areas, subdrains should be spaced approximately 50 to 75 feet center to center and may be constructed to daylight or be connected to gravity flow storm drains capable of handling the discharge. We are available to review the subdrain layout design, once the final grading plan becomes available, which can be modified at time of construction to accommodate site specific variations in the soil profile and if seepage zones become evident.

Pavement Thickness Design

Either rigid (Portland cement concrete, PCC) or flexible (hot mix asphalt, HMA) pavement types could be constructed on the prepared cohesive subgrade. The following Table B summarizes alternate pavement thicknesses for typical lightly-loaded, moderately-loaded and heavily-loaded paved areas. A more specific pavement evaluation can be provided if traffic volume and loading information is available.

TABLE B
TYPICAL PAVEMENT THICKNESSES

Traffic Volume	Rigid: PCC [1]	Flexible: HMA [2]
Lightly-Loaded [3]	5"	6"
Moderately-Loaded	6"	7"
Heavily-Loaded [4]	7"	8"

1) PCC - Flexural strength of 550 psi
2) Type A HMA - Structural coefficient of 0.44/inch
3) Automobile and 1 to 2 trucks average daily traffic.
4) Entrances, delivery areas, dumpster areas or other areas of heavier truck traffic (25 trucks or less per day).

The above pavement thicknesses are considered to be typical and would require periodic maintenance. This maintenance would consist of sealing cracks and replacement of isolated distressed areas. Thicker pavement sections would reduce maintenance and increase the pavement service life. Likewise, thinner sections would be expected to have a shorter service life that still may satisfy particular project needs but may require more maintenance. Other criteria which influence pavement service life include surface drainage, subsurface drainage, paving material quality, reinforcement, and joint design. Construction procedures involving placement, finishing, curing, jointing and weather protection can significantly impact pavement performance.

Frost Heave

Key elements contributing to frost heave including freezing temperatures, available water, and fine-grained frost susceptible soils are generally present at sites in Iowa. As a result, frost heave problems are generally common (and most noticeable) in pavements or sidewalks adjacent to non-frost susceptible elements such as manholes, light poles, and exterior doors or frost protected stoops. Frost heave can cause pavement cracks to develop parallel to and several feet from curbs. This generally occurs where cleared paved areas exposed to freezing temperatures heave more than adjoining paved areas insulated by piled snow. Areas cleared of snow not exposed to periodic sunshine during the winter, such as under canopies, on the north shaded side of buildings and other shaded areas may experience more frost heave than other sunshine exposed areas. Sometimes it is not readily apparent why frost heave problems occur at one location and not at another seemingly similar location.

While it is appropriate to implement measures to reduce frost heave such as insulation, replacing frost susceptible soils with less frost susceptible soils, void forms, sealing cracks/joints to reduce surface water infiltration, or drainage improvements (surface and subsurface), these measures may simply move the frost heave problem to a different location where preventative measures have not been implemented. Having a smooth transition between heaved and non-heaved areas is desirable, but may be difficult and/or costly to accomplish. We are available to consult with you to discuss options for your consideration to reduce frost heave potential on this project.

GENERAL

The analyses and recommendations in this report are based in part upon the data obtained from the soil borings performed at the indicated locations and from any other information discussed in this report. This report does not reflect any variations which may occur between borings or across the site. The nature and extent of such variations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

It is recommended that the geotechnical engineer be provided the opportunity to review the plans and specifications so that comments can be made regarding the interpretation and implementation of our geotechnical recommendations in the design and specifications. It is further recommended that the geotechnical engineer be retained for testing and observation during earthwork and foundation construction phases to help determine that the design requirements are fulfilled.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranty, expressed or implied, is made. In the event that any changes in the nature, design or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions of this report modified or verified in writing by the geotechnical engineer.

The scope of our service was not intended to include any environmental assessment or exploration for the presence of hazardous or toxic materials in the soil, surface water, groundwater, or air on, below or adjacent to this site.

APPENDIX

BORING LOG DESCRIPTION/LEGEND

The material types encountered during the drilling operations were recorded on field logs. The profile represented on the Boring Log is based on final classification performed by a geotechnical engineer using the field logs, laboratory observation and testing. The material stratigraphy demarcation lines shown on the Boring Logs indicate changes in soil characteristics, however, actual soil changes or variations may occur as a gradual transition. Soil profile discussion, Log Boring information, water levels and recommendations presented in this report are based upon measured depths below ground levels existing at time of the field exploration, unless otherwise specified.

DRILLING AND SAMPLING

The borings were conducted with either a truck or all-terrain rotary drill rig using the drilling methods indicated on each Boring Log. Soil sampling and/or in-situ testing such as Shelby Tube (ST), split-spoon (SS), drive cone (DC), or core (C) was conducted at depth intervals which were selected in consideration of the characteristics of the proposed construction. Generally undisturbed soil samples are taken at 5 foot depth intervals or change in soil types. Disturbed soil samples from the auger, either jar size or bulk size samples, may be taken at intermediate intervals for the purpose of soil classification or laboratory testing. Borings conducted for soil classification only, will show no designation of sampling although disturbed sampling is performed. Soil samples obtained in the field were identified and sealed for transportation to the laboratory for performance of pertinent physical testing and engineering classification.

Drilling Methods

CFA - Continuous Flight Auger: 4, 6, or 8-inch diameter (ASTM D1452).
RD - Rotary Drilling: Using drilling fluid in cased or uncased boring (ASTM D2113).
HSA - Hollow Stem Auger: 6 or 8-inch diameter, continuous flight auger remains in boring with soil removed from the hollow stem through which undisturbed sampling is conducted.
HA - Hand Auger: 4-inch or less diameter.

Sample Types

ST - Shelby Tube: Thin-walled tube samples of cohesive soils (ASTM D1587).
SS - Split Spoon with 140 lb. manual hammer: Standard penetration test and split-barrel samples (ASTM D1586).
SSA - Split Spoon with 140 lb. automatic hammer: Standard penetration test and split-barrel samples (ASTM D1586).
DC - Drive Cone: Dynamic in-place testing of soil using a 2-inch diameter cone with a 60 degree point driven into the soil for continuous 1-foot intervals in the same manner as Split Spoon, no sample is obtained.
C - Core: Sampling hard soil or bedrock with a diamond core barrel in a rotary drill boring (ASTM D2113).
SPT - Standard Penetration Test: Number of blows required to drive sampler (split spoon or drive cone) into the soil with a 140-pound weight dropping a distance of 30-inches (ASTM D1586), number of blows recorded for each 6-inch interval in an 18-inch (or more) penetration depth, values shown are for each 6-inch interval (if series of number sets are shown) or a total of the last two 6-inch intervals (if only one number is shown) which is commonly referred to as "N" in blows per foot. High resistance is indicated by a high number of blows for a lesser penetration depth listed in inches.
BS - Bulk Sample: Disturbed.
CPT - Cone Penetration Test: Quasi-static in-place testing of soils using a 60 degree cone and friction sleeve which are steadily pushed into the soil and measure skin friction and end bearing (ASTM D3441).

STANDARD LABORATORY TESTING

Representative undisturbed soil samples obtained by the Shelby Tube sampler were tested for moisture content (ASTM D2216), density (dry) and unconfined compressive strength (ASTM D2166) in the laboratory. Results of these tests appear on the respective Boring Logs. Additional soil testing including particle size analysis (ASTM D422) and Atterberg Limits (ASTM D4318) may be conducted, if necessary, to define in more detail pertinent soil characteristics for classification in accordance with the Unified Soil Classification System. Specialized laboratory tests (if conducted) to determine pertinent soil characteristics are discussed in the "Laboratory Testing" section of the report.

WATER LEVEL MEASUREMENT

Water levels indicated on the Boring Logs are the levels measured in the borings at the times indicated. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels is not possible with short term observations.

BORING LOG DESCRIPTION/LEGEND

DESCRIPTIVE SOIL CLASSIFICATION

Soil description is based on the Unified Classification System as outlined in ASTM Designations D-2487 and D-2488. This classification is primarily based upon visual and apparent physical soil characteristics, comparison with other soil samples, and our experience with the soil. Additional laboratory testing may be conducted, if necessary to define in more detail pertinent soil characteristics. The Unified Soil Classification group symbol shown on the boring logs corresponds with the group names listed below. The description includes soil constituents, moisture conditions, color and any other appropriate descriptive terms.

Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name	Group Symbol	Group Name
GW	Well-Graded Gravel	SW	Well-Graded Sand	CL	Lean Clay	CH	Fat Clay
GP	Poorly-Graded Gravel	SP	Poorly-Graded Sand	ML	Silt	MH	Elastic Silt
GM	Silty Gravel	SM	Silty Sand	OL	Organic Clay Organic Silt	OH	Organic Clay Organic Silt
GC	Clayey Gravel	SC	Clayey Sand			PT	Peat

RELATIVE PROPORTIONS			GRAIN SIZE TERMINOLOGY	
Descriptive Term(s) (Of components also present in sample)	Sand and Gravel % of Dry Weight	Fines % of Dry Weight	Major Component of Sample	Size Range
Trace	<15	<5	Cobbles	12 in. to 3 in. (300mm to 75mm)
With	15-30	5-12	Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Modifier	>30	>12	Sand	#4 to #200 sieve (4.75mm to 0.074mm)
			Silt or Clay	Passing #200 sieve (.074 mm)

CONSISTENCY OF FINE-GRAINED SOILS			RELATIVE DENSITY OF COARSE-GRAINED SOILS	
Unconfined Compressive Strength, Qu, psf	Consistency	SPT, bpf	SPT, bpf	Relative Density
< 500	Very Soft	0-2	0-4	Very Loose
500-1,000	Soft	2-4	4-10	Loose
1,000-2,000	Medium Stiff	4-8	10-30	Medium Dense
2,000-4,000	Stiff	8-15	30-50	Dense
4,000-8,000	Very Stiff	15-30	50-80	Very Dense
8,000-16,000	Hard	30-100	80+	Extremely Dense
> 16,000	Very Hard	>100		

BORING LOG DESCRIPTION/LEGEND

ABBREVIATIONS

COMMONLY USED ABBREVIATIONS	
ft. or ' - feet	elev. - Elevation
in. or " - inches	% - Percent
psf - pounds per square foot	No. - Number
plf - pound per lineal foot	TB - Test Boring
pcf - pounds per cubic feet	N - blow count (SPT, bpf)
kip - 1000 pounds	USCS - Unified Soil Classification System
ksf - 1000 pounds per square foot	LL - Liquid Limit
klf - 1000 pounds per lineal foot	PL - Plastic Limit
tsf - tons per square foot	PI - Plasticity Index
bpf - blows per foot (SPT, N)	

BORING LOG NO. 1

Project No.: 251210

Project: NCF IPI Homes for Iowa Facility Project
307 S 60th Street
Newton, Iowa

Client: Samuels Group
2929 Westown Parkway, Suite 200
West Des Moines, Iowa

Surface Elevation: 772.0'
Datum: IA RTN Derived

Date Drilled: 6/11/25
Drilling Depth, ft.: 20

Drilling Method: 4" CFA
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth / Elevation ft.
772	0							Dark brown lean clay, damp		CL		
		1	SSA	6	24.1						▼	
770								Moist after 2.5'				
768	4	2	SSA	5	35.3			Very dark brown after 4'		CL		
766		3	SSA	8	26.7			**COHESIVE ALLUVIUM**				
764	8							Very dark gray fat clay after 7'		CH		
		4	ST		24.7	99	3210					
762								Gray-brown after 10.5'				
760	12											13.5
758		5	SSA	10	23.0			Gray silty fine to medium sand, very moist Saturated after 14.5'		SM	▽	758.5
756	16							Brown after 16' **GRANULAR ALLUVIUM**				
754		6	SSA	3	21.9							
752	20							End of Boring				20 752
750												
748	24											
746												

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion ____ hrs. 13 days

Depth to water: 14.5 ft. ▽ ____ ft. ▼ 2 ft. ▼

ALLENDER BUTZKE ENGINEERS, INC.

Geotechnical | Environmental | Construction Q.C.

BORING LOG NO. 2

Project No.: 251210

Project: NCF IPI Homes for Iowa Facility Project
307 S 60th Street
Newton, Iowa

Client: Samuels Group
2929 Westown Parkway, Suite 200
West Des Moines, Iowa

Surface Elevation: 775.5'
Datum: IA RTN Derived

Date Drilled: 6/11/25
Drilling Depth, ft.: 20

Drilling Method: 4" CFA
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth / Elevation ft.
	0							Dark brown lean clay, trace organics, damp		CL		
774		1	SSA	5	19.5							
772	4	2	SSA	5	23.5			Brown and moist after 4'				
770		3	SSA	5	24.9			**COHESIVE ALLUVIUM**				
768	8											
766		4	ST		24.8	97	3210					
764	12							Brown lean to fat clay, moist after 11.5'		CL-CH		
762												14
760	16	5	SSA	6	20.4			Brown silty fine to medium sand, very moist		SM		761.5
758								Saturated after 16'			▽	
756		6	SSA	5	Sat.			**GRANULAR ALLUVIUM**				
	20											20
754								End of Boring				755.5
752	24											
750												

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation

Time: at completion _____ hrs. _____ days

Depth to water: 16 ft. ▽ _____ ft. ▼ _____ ft. ▼

ALLENDER BUTZKE ENGINEERS, INC.

Geotechnical | Environmental | Construction Q.C.

BORING LOG NO. 3

Project No.: 251210

Project: NCF IPI Homes for Iowa Facility Project
307 S 60th Street
Newton, Iowa

Client: Samuels Group
2929 Westown Parkway, Suite 200
West Des Moines, Iowa

Surface Elevation: 783.4'
Datum: IA RTN Derived

Date Drilled: 6/11/25
Drilling Depth, ft.: 20

Drilling Method:
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth / Elevation ft.
	0							Dark brown lean clay, trace organics, damp		CL		
782		1	SSA	4	23.9							
780	4	2	SSA	4	22.7			Brown and moist after 3.5'				
778												
		3	ST		21.8	90	1680					
776	8											
774		4	ST		25.3	93	2540	**COHESIVE ALLUVIUM**				
772								Very moist after 11'				
	12											
770		5	ST		24.7	92	1470					
768												
	16											
766												
764		6	SSA	5	28.0							20
	20							End of Boring				763.4
762												
760												
	24											
758												

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation
Time: at completion _____ hrs. _____ days
Depth to water: **Dry** ft. _____ ft. _____ ft.

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical | Environmental | Construction Q.C.

BORING LOG NO. 4

Project No.: 251210

Project: NCF IPI Homes for Iowa Facility Project
307 S 60th Street
Newton, Iowa

Client: Samuels Group
2929 Westown Parkway, Suite 200
West Des Moines, Iowa

Surface Elevation: 786.9'
Datum: IA RTN Derived

Date Drilled: 6/11/25
Drilling Depth, ft.: 20

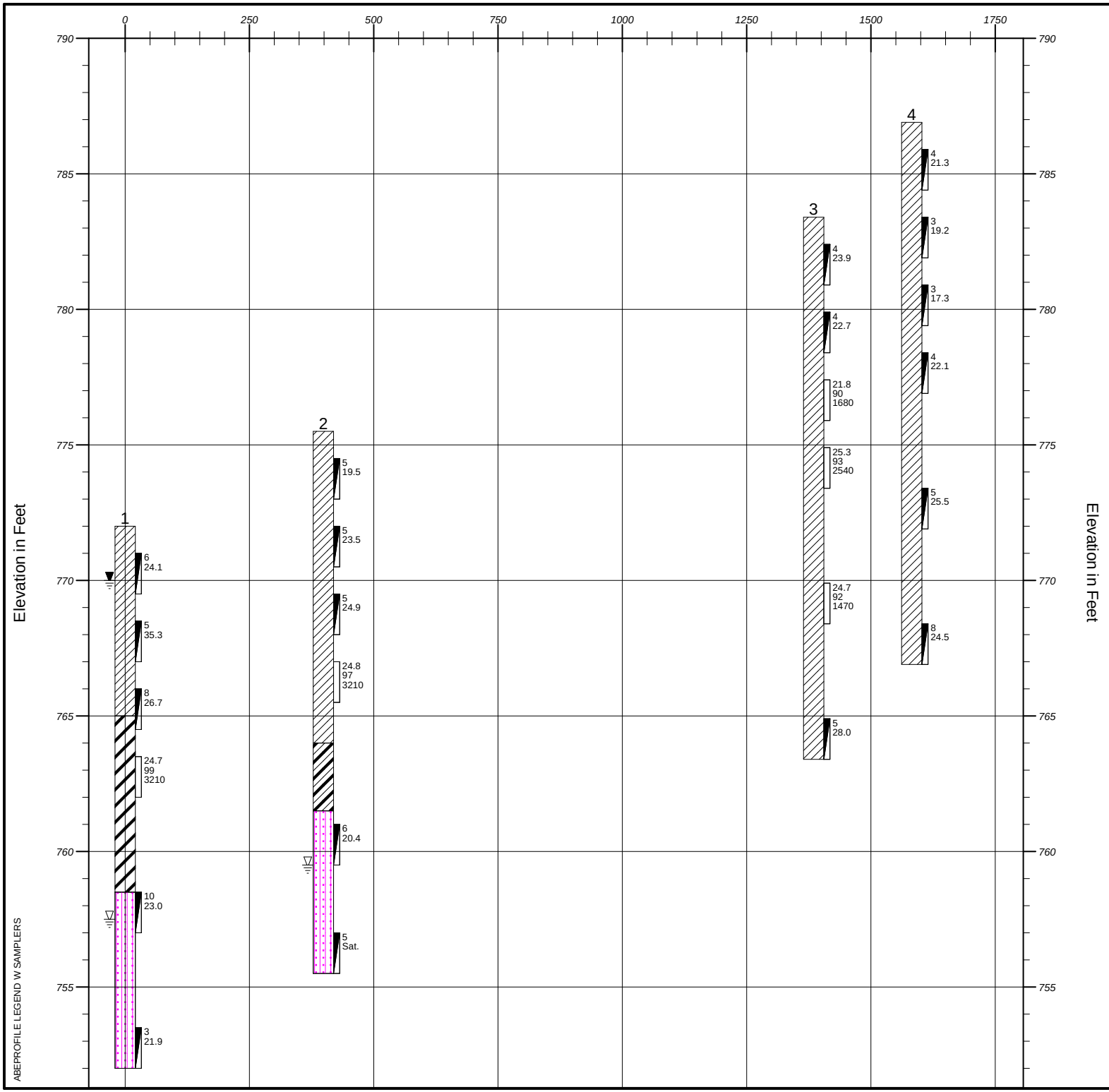
Drilling Method: 4" CFA
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth / Elevation ft.
786	0							Dark brown lean clay, trace organics, damp		CL		
		1	SSA	4	21.3							
784												
	4	2	SSA	3	19.2			Brown sandy lean clay, moist after 3.5'				
782												
		3	SSA	3	17.3			Brown very sandy lean clay to silty sand after 6'				
780												
	8											
778		4	SSA	4	22.1			**COHESIVE ALLUVIUM**				
776												
	12							Brown gray and very moist after 12'				
774												
		5	SSA	5	25.5							
772												
	16											
770												
768		6	SSA	8	24.5							20
	20							End of Boring				766.9
766												
764												
	24											
762												
760												

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation
Time: at completion ____ hrs. 13 days
Depth to water: Dry ft. ____ ft. Dry ft.

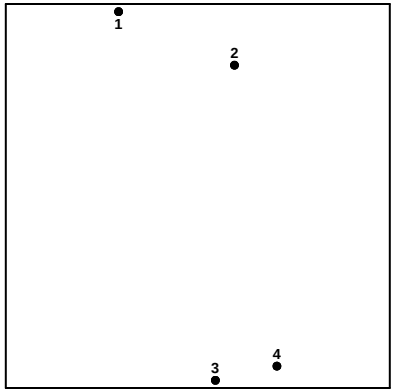
ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical | Environmental | Construction Q.C.



ABEPROFILE LEGEND W SAMPLERS

PROFILE OF BORINGS

Plan View (NORTH)



Profile of Borings Legend

Symbol	Description	Symbol	Description
Strata symbols			
	Lean Clay		Undisturbed thin wall Shelby tube
	Fat Clay		
	Silty Sand		
	Lean to Fat Clay		
Misc. Symbols			
	Water table at completion		
	Water table at x days		
Soil Samplers			
	Standard penetration test		

ALLENDER BUTZKE ENGINEERS, INC.

NCF IPI Homes for Iowa Facility Project

307 S 60th Street

Newton, Iowa

PN 251210

Vertical Scale: 1 inch = 5 feet

Plate A-1

Plan is intended to show the approximate soil boring locations only.

ALLENDER BUTZKE ENGINEERS INC. 3660 109th Street Urbandale, IA 50322	NCF IPI Homes for Iowa Facility Project S 60th Avenue West Newton, Iowa	Approximate Overlay Plan by Bishop 2023 Aerial	PN 251210 Site Plan

NOTES