IOWA DEPARTMENT OF NATURAL RESOURCES

PROJECT MANUAL

FORT ATKINSON STATE PRESERVE

EXTERIOR MASONRY AND STRUCTURAL REPAIRS

WINNESHIEK COUNTY, IOWA

ATTENTION BIDDERS

ALL SUBSTITUTION REQUESTS AND QUESTIONS MUST BE SUBMITTED BY 12:00PM THE FRIDAY PRIOR TO THE BID LETTING TO BE CONSIDERED.

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PREPARED BY

IOWA DEPARTMENT OF NATURAL RESOURCES

ENGINEERING BUREAU

502 E 9TH ST

DES MOINES IA 50319-0034

PROJECT N0. 24-03-96-01

Obtain complete sets of contract documents including Drawings, Specification, bid documents, bidders' list in electronic format at: *www.beelineandblue.com*

Section Number

END OF SECTION 00002

CONSTRUCTION DRAWINGS - SHEET NO. G0.0 THROUGH NO. S-1.5 INCLUSIVE

Sheet No. G0.0 -- Cover Sheet
Sheet No. G.01 -- Notes and Legends
Sheet No. G.02 -- Project Location
Sheet No. G.03 -- General Notes and Scope of Work
Sheet No. A0.0 -- Site Plan
Sheet No. A0.1 -- Archaeology Site Plan
Sheet No. A1.0 -- North Barracks Plans
Sheet No. A1.1 -- North Barracks Elevations
Sheet No. A1.2 -- Northeast Blockhouse Plans and Elevations
Sheet No. A1.3 -- Bid Alternate #5 – Southwest Blockhouse Plans and Elevations
Sheet No. A1.4 -- Bid Alternate #6 – Powder Magazine Plans and Elevations
Sheet No. A2.0 -- Stone Repairs
Sheet No. A2.1 -- Stone Repairs
Sheet No. A3.0 -- Bid Alternate #3 and #4 – Window and Door Repairs
Sheet No. A3.1 -- Bid Alternate #5 – Window and Door Repairs
Sheet No. A4.0 -- Roof Repairs
Sheet No. A5.0 -- Bid Alternate #2 – Foundation Waterproofing Repairs
Sheet No. S-1.0 -- Structural Repairs at Northeast Blockhouse
Sheet No. S-1.1 -- Structural Repairs at North Barracks
Sheet No. S-1.2 -- Structural Repairs at North Barracks
Sheet No. S-1.3 -- Bid Alternate #1 – Foundation Repairs at North Barracks
Sheet No. S-1.4 -- Bid Alternate #5 – Roof Structure Repairs
Sheet No. S-1.5 -- Roof Structure Repairs

Notice to Bidders - Iowa Department of Natural Resources

Sealed bids will be received by the Iowa Department of Natural Resources, at the Wallace State Office Building, 502 East 9th Street, Des Moines, IA, 50319-0034, or via email at **constructionbids@dnr.iowa.gov** until **11:00am, January 18, 2024** for the public improvement projects listed below, at which time they will be opened publicly. After the bid opening, bid results may be obtained by visiting the Department's website at https://programs.iowadnr.gov/engreal/projectlist.asp. In addition to attending the bid opening in person, interested parties may also call in to the following number to listen to the bid opening:

Conference call number: +1 (240) 623-0919
PIN: 683-750-293#

In order to improve sound quality, please mute your phone by pressing ***6**. If you have questions, you can unmute your phone by pressing ***6**.

Sealed bids sent via email must be sent to constructionbids@dnr.iowa.gov When emailing bid documents, the subject line of the email must state the following: Project Number, Project Name, and Bid Letting Date. Please ensure the first page of the emailed attachment, or first of multiple attachments, is the bid proposal. **No bids shall be accepted via FAX.**

Note: The United States Postal Service (USPS) does not deliver mail or packages directly to the address provided above but rather to the Capitol Complex Mail Room. Extra time should be allotted for proposals sent by the USPS. The Iowa Department of Natural Resources shall not consider bids if they are not received by the Department of Natural Resources mail room or reception staff, by the time and date described in this Notice to Bidders, regardless of whether the bid was mailed or received at the Capitol Complex Mail Room or other state government location prior to that time and date.

Project documents, including drawings, specifications, proposal forms, and addenda items for the project are available at Beeline and Blue, at 2507 Ingersoll Ave, Des Moines IA 50312. Please visit www.beelineandblue.com or contact (515) 244-1611 for more information. Alternatively, Bid Documents can be viewed or printed online at https://programs.iowadnr.gov/engreal/projectlist.asp

The Department shall comply with all public improvement procurement laws, as outlined in the plans and specifications and including but not limited to: Iowa Code chapter 26 related to public construction bidding; Iowa Code chapter 73 related to preferences; Iowa Code chapter 573 related to labor and materials on public improvements; rules promulgated by the Department of Administrative Services – General Services Enterprise as they may apply; rules promulgated by the Department of Natural Resources and the Natural Resources Commission, as they may apply; and any federal statutes, rules and/or executive orders that may be associated depending on funding sources. Bidders shall comply with these laws to be considered and are encouraged to be familiar with public improvement procurement requirements and the bidding documents before submitting a bid.

Each bidder shall accompany the bid with a bid security as defined in Iowa code section 26.8. Copies of the bid security will be accepted for those bidders submitting bids electronically. Additionally, the submission of an electronic bid security in the form of a certified check, cashier's check, or money order, the original security must be mailed to the Department at the Wallace State Office Building, 502 East 9th Street, Des Moines, IA 50319 within (5) business days after the bid letting date. The bid security must be in an amount set forth in the bidding documents and made payable to the Iowa Department of Natural Resources. Failure to execute a contract for the proposed work and file an acceptable Performance Bond, in an amount equal to 100% of the contract price and a certificate of liability insurance, within thirty (30) days of the date of the award of the contract, will be just and sufficient cause for the rescinding of the award and the forfeiture of the bid security.

SPECIAL NOTICE TO CONTRACTORS

Contractor is responsible for contacting State Stormwater program coordinator (515-217-0875) for information relating to stormwater permit that is necessary if construction activities disturb one acre or more.

Project Estimate: $830,000.00
Funding Source: Special Appropriations and Federal Other

Direct questions concerning the Project Design, Drawings and Specifications to:

Ryan Richey
Project Manager
Wallace State Office Building
502 E 9th St
Des Moines, Iowa 50319-0034
Phone: (515) 979-0107
Fax: (515) 725-8202
Ryan.richey@dnr.iowa.gov

Direct questions concerning Site Review and Project Inspection to:

Ken Howe
District Engineer
Phone: (319) 240-3553
Kenneth.howe@dnr.iowa.gov

Direct questions concerning Bidding and Contract Procedures to:

Stephanie Graham, Procurement Agent 3
Wallace State Office Building
502 E 9th St
Des Moines, Iowa 50319-0034
Phone: (515) 344-0055
stephanie.graham@dnr.iowa.gov

In accordance with Iowa Code Section 423, Contractors may purchase qualifying items for work on this contract exempt from sales tax. The DEPARTMENT will issue an authorization letter and exemption certificate to the prime contractor and each approved subcontractor. *Complete information on qualifying materials and supplies can be found in Iowa Administrative Rules Chapter 701-219. Additional guidance for contractors can be found at https://tax.iowa.gov/, the Iowa Department of Revenue Web site.*

Recorded bid results can be accessed at *https://programs.iowadnr.gov/engreal/projectlist.asp*.

Time and Date of Letting **11:00 AM, January 18, 2024**

PROPOSAL

Project Description and Location

Project No. **24-03-96-01**

EXTERIOR MASONRY AND STRUCTURAL REPAIRS
FORT ATKINSON STATE PRESERVE
WINNESHIEK COUNTY, Iowa

Proposal of: _____
(Name of Bidder)

Located at: _____
(Address) (Telephone include area code)

Amount of Proposal Guarantee	Specified completion date or Number of Working Days	Approx. or Specified Starting Date or Number of Working Days	Liquidated Damages Per Day
$50,000.00	June 30, 2024	N/A	$1,000.00

The undersigned hereby agrees, if awarded the contract, to execute the proposed contract and to furnish an approved performance bond in a amount not less than 100 percent of the contract award within 30 days after the date of approval of award of the contract, and to provide all labor, materials, and equipment required to complete the project designated above, for the price hereinafter set forth, in strict compliance with the contract documents prepared by the Iowa Department of Natural Resources.

The undersigned agrees, if awarded the contract, to commence the work within a reasonable time after the preconstruction conference or by the specific starting date, if so specified, and to complete the work within the contract period, or to pay liquidated damages in the amount stipulated herein for each calendar day the work remains uncompleted after the expiration of the contract period or any authorized reduction thereof.

A proposal guarantee in the amount stipulated herein is included with this proposal, to be forfeited to the Iowa Department of Natural Resources if the undersigned fails to execute the contract and furnish an approved performance bond, if awarded the contract.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the state of Iowa, and also, a resident bidder shall be allowed a preference against a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign country on projects in which there are no federal funds involved.

BY

_____ _____ _____
(Iowa Contractor Registration No.) (Signed) (Date)

_____ _____
(Phone Number) (Fax Number)

_____
(Email Address)

By signing and submitting the proposal, the bidder:

1. Gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures; and

2. Affirms to have examined the plans, specifications, and job site to become acquainted with the adjacent areas, means of approach to the site, conditions of the actual job site, and the facilities for delivering, storing, placing, and handling of materials and equipment.

SCHEDULE OF PRICES

Project Description and Location

EXTERIOR MASONRY AND STRUCTURAL REPAIRS, FORT ATKINSON STATE PRESERVE, WINNESHIEK COUNTY

Name of Bidder

THE "UNIT PRICE" AND "AMOUNT" COLUMNS MUST BE FILLED IN FOR THIS PROPOSAL TO BE CONSIDERED COMPLETE. IF THERE IS A DISCREPANCY BETWEEN UNIT BID PRICES, EXTENSIONS, OR TOTAL AMOUNTS OF BID, THE UNIT PRICES SHALL GOVERN.

Item No.	Description	Estimated Quantity		Unit Price	Amount
1	North Barracks Restoration	1	LS		
2	Northeast Blockhouse Restoration	1	LS		
				Base Bid	
3	**Alternate #1**: Flooring Repairs at North Barracks	1	LS		
4	**Alternate #2**: Subsurface Drainage - North Barracks and Southwest Blockhouse	1	LS		
5	**Alternate #3**: Window and Door Flashing at North Barracks	1	LS		
6	**Alternate #4**: Window / Door Infill and Flashing at North Barracks	1	LS		
7	**Alternate #5**: Southwest Blockhouse Restoration	1	LS		
8	**Alternate #6**: Powder Magazine Restoration	1	LS		

Bidder Acknowledges Receipt Of Any Issued Addenda (Number and Date):		

Subcontractor Information

Name	Iowa Contractor Registration Number

EPA Project Control Number

United State Environmental Protection Agency
Washington, DC 20460

Certification Regarding
Debarment, Suspension, and Other Responsibility Matters

EPA Form 5700-49 (11-83)

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agencies.

b. Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

d. Have not within a three-year period preceding this application/proposal had one or more public transaction (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine up to $10,000 or imprisonment for up to 5 years, or both.

Type Name & Title of Authorized Representative

Signature of Authorized Representative

Date

☐ I am unable to certify to the above statements. My explanation is attached.

Instructions
Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, of a sub agreement thereunder for $25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or sub agreement participant thereunder must complete the attached certification or provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Where To Submit
The prospective EPA grant. loan, or cooperative agreement recipient must return the signed certification of explanation with its application to the appropriate EPA Headquarters or Regional office, as required in the application instructions.

A prospective prime contractor must submit a completed certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a completed certification or explanation to the prime contractor for the project.

How To Obtain Forms:
EPA includes the certification form, instructions, and a copy of its implementing regulation (40) CFR Part 32) in each application kit. Applicants may reproduce these materials as needed and provide them to their prospective prime contractors, who, in turn may reproduce and provide them to prospective subcontractors.

Additional copies/assistance may be requested from:

Compliance Branch
Grants Administration Division (PM-216F)
US Environmental Protection Agency
401 M St SW
Washington DC 20460
(Telephone: 202-475-8025)

EPA Region VII Procedures for Implementation of 40 CFR Part 33.240
(Minority Business Enterprise/Women's Business Enterprise)

The following information must be contained in solicitation documents for construction contracts and engineering agreements pursuant to 40 CFR Part 33.240)

Each bidder/offeror must fully comply with the requirements, terms, and conditions of EPA's policy to award a fair share of sub agreements to minority and women's businesses. The bidder/offeror commits itself to taking affirmative steps contained herein. Bidders/offerors will take affirmative steps prior to submission of bid/proposal.

Affirmative Steps

A. When feasible, segmenting total work requirements to permit maximum MBE/WBE participation.

B. Assuring that MBEs and WBEs are solicited whenever they are potential sources of goods or services. This step may include:
   1. Sending letters or making other personal contacts with MBEs and WBEs, (e. g. those whose name appear on lists prepared by EPA or the grantee and other MBE/WBEs known to the bidder/offeror.) MBEs and WBEs should be contacted when other potential subcontractors are contacted, within reasonable time (fifteen days) prior to bid submission or closing date for receipt of initial offers. Those letters or other contacts should communicate the following:

      a. Specific description of the work to be subcontracted;
      b. How and where to obtain a copy of the drawings and specifications or other detailed information needed to prepare a detailed price quotation;
      c. Date the quotation is due to the bidder/offeror;
      d. Name, address, and phone number of the person in the bidder/offeror's firm whom the prospective MBE/WBE subcontractor should contact for additional information.

   2. Sending letters or making other personal contacts with local, state, federal and private agencies and MBE/WBE associations relevant to the project. Such contacts should provide the same information provided in the direct contacts to MBE and WBE firms.

C. Where feasible, establishing delivery schedules which will encourage participation by MBE and WBEs.

Determination of Compliance

It is to be noted that bidders/offerors must demonstrate compliance with MBE/WBE requirements in order to be deemed responsible. Demonstration of compliance shall include, but is not limited to, the following information:

1. Names, addresses and phone numbers of MBE/WBEs expected to perform the work;
2. Work to be performed by MBEs and WBEs;
3. Aggregate dollar amount of work to be performed by MBEs and WBEs, showing aggregate to MBEs and aggregate to WBEs separately;
4. Description of contacts to MBE and WBE organizations, agencies and associations which serve MBE/WBEs, including names of organizations, agencies and associations and dates of contacts;
5. Description of contacts to MBEs and WBEs, including number of contacts, fields, (i. e. equipment or material supplier, excavator, transport services, electrical subcontractors, plumbers, etc.) and dates of contacts.

All bidders/offerors should complete the Minority and Women's Business Enterprise Utilization Worksheet and submit to the grantee prior to contract award.

(Grantee may establish alternative methods of compliance equivalent to or more stringent than the above.)

MINORITY, WOMEN'S AND SMALL RURAL BUSINESS ENTERPRISE WORKSHEET

Grant Applicant: _____ Project No.: _____

Contractor/Engineer: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Contract: _____ MBE Percentage: _____ WBE Percentage: _____

1. MBE Subcontractor: _____ WBE: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Subcontract: _____

Scope of Work: _____

_____

_____

2. MBE Subcontractor: _____ WBE: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Subcontract: _____

Scope of Work: _____

_____

_____

3. MBE Subcontractor: _____ WBE: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Subcontract: _____

Scope of Work: _____

_____

_____

4. MBE Subcontractor: _____ WBE: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Subcontract: _____

Scope of Work: _____

_____

_____

5. MBE Subcontractor: _____ WBE: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Subcontract: _____

Scope of Work: _____

_____

_____

6. MBE Subcontractor: _____ WBE: _____

Address: _____

Contact Person: _____ Telephone No.: _____

Amount of Subcontract: _____

Scope of Work: _____

_____

_____

Comments: _____

_____

_____

_____

Prepared By	Telephone No.	Date

GUIDANCE FOR MINORITY BUSINESS ENTERPRISE AND WOMEN'S BUSINESS ENTERPRISE REQUIREMENT OF 40 CFR 31.36(e)

I. PURPOSE

This guidance is to assist States, EPA assistance recipients, prime contractors, consultants, minority business owners and women's business owners in complying with EPA's Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) requirements in the Agency's procurement regulations, 40 CFR Part 31. This guidance provides suggestions for carrying out the affirmative steps included in EPA procurement regulations. Also included is a description of activities to be undertaken by EPA or delegated States, as well as suggestions for MBE/WBEs to take in pursuing opportunities for work in EPA-funded projects.

II. DEFINITIONS

A. Minority Business Enterprise (MBE): A minority business enterprise is a business which is

1. certified as socially and economically disadvantaged by the Small Business Administration;
2. certified as a minority business enterprise by a State or Federal agency; or
3. an independent business concern which is at least 51 percent owned and controlled (as defined below) by minority group member(s). A minority group member is an individual who is a citizen of the United States and one of the following:

   a. Black American
   b. Hispanic American (with origins form Puerto Rio, Mexico, Cuba, South or Central America)
   c. Native American (American Indian, Eskimo, Aleut, native Hawaiian)
   d. Asian-Pacific American (with origins from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the US Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, Taiwan or the Indian Subcontinent)

B. Women's Business Enterprise (WBE): A women's business enterprise is a business which is certified as such by a State or Federal agency, or which meets the following definition:

A women's business enterprise is an independent business concern which is at least 51 percent owned by a woman or women who also control and operate it. Determination of whether a business is a least 51 percent owned by a woman or women shall be made without regard to community property laws. For example, an otherwise qualified WBE which is 51 percent owned by a married woman in a community state will not be disqualified because her husband has a 50 percent interest in her share. Similarly, a business that is 51 percent owned by a married man and 49 percent owned by an unmarried woman will not become a qualified WBE by virtue of his wife's 50 percent interest in his share of the business.

C. Ownership and Control:

1. The minority of women's ownership's interest in the firm must be real, substantial and continuing. Such interest may include:
   a. risk of loss/share of profit commensurate with the proportional ownership; and
   b. receipt of the customary incidents of ownership, such as salary and/or intangible benefits.

2. A minority or woman owner must have and exercise the authority to independently control the business. The minority or woman owner need not be continually present to be deemed in control. Characteristics of control may include:
   a. authority to sign contacts;
   b. making decisions in price negotiations;
   c. incurring liabilities for the firm;
   d. making final staffing decisions;

e. policy-making; and
f. making general company management decisions.

3. Only those firms performing a useful business function according to custom and practice in the industry are qualified as MBEs or WBEs. Acting merely as a passive conduit of funds to some other, non-minority firm where such activity is unnecessary to accomplish the project the project does not constitute a "useful business function according to custom and practice in the industry."

D. Recipient: A party receiving federal financial assistance under an EPA program pursuant to a grant or cooperative agreement.

E. Project: The scope of work from which a cooperative agreement, grant or grant amendment is awarded.

F. Bidder: A party seeking to obtain a contract with a recipient through a competitive, advertised, sealed bid process.

G. Offeror: A party seeking to obtain a contract with a recipient through a negotiated procurement process.

III. RESPONSIBILITIES

A. Headquarters.
1. The office in charge of the assistance program (program office) has primary responsibility for implementation of the MBE/WBE program, in cooperation with the Office of Small and Disadvantaged Business Utilization (OSDBU).
2. OSBDU is responsible for serving as the Agency focal point for inquiries on the MBE/WBE program, providing explanation of the program and guidance to MBEs and WBEs interested in working on EPA funded projects.

B. Regional Responsibilities.
1. Provide guidance and advice to recipients as requested.
2. Maintain lists of those MBE and WBE firms which have participated in EPA funded projects. The Region may also add MBEs and WBEs requesting to be included on source lists. Such lists are for information purposes only, and shall carry a clear and prominent statement that the firms listed are neither endorsed nor guaranteed by EPA as bona fide MBE/WBEs. It is not necessary to be on any list in order to qualify as a bona fide MBE/WBE.

3. Monitor recipients for compliance with MBE/WBE requirements and for determining levels of MBE/WBE participation.

IV. RECIPIENT RESPONSIBILITIES

A. The recipient shall take affirmative steps to contract with MBEs and WBEs and ensure that its contractors and consultants take affirmative steps to contract with MBEs and WBEs during all phases of work funded or to be funded under an EPA assistance agreement. The recipient's affirmative steps as defined in EPA procurement regulations are the following:
1. When feasible, dividing the total work to be contracted into smaller tasks in the solicitation documents to permit maximum MBE/WBE participation.
2. Placing qualified MBEs and WBEs on solicitation lists of EPA Regional Offices and appropriate minority/women's business associations and agencies.
3. Assuring that MBEs and WBEs are solicited whenever they are potential sources of service and supplies, for example, by:
a. Holding pre-bid conferences, with interested MBEs and WBEs in attendance when possible, to highlight the requirements of this program to prospective bidders;

b. Including this MBE/WBE interim guidance in requests for proposals (RFP) and invitations for bid (IFB);

c. Publishing announcements of MBE/WBE opportunities for work on EPA funded projects;

d. Developing a source list of MBE/WBEs and providing its list to prospective bidders/offerors;

4. The recipient may wish to engage a MBE/WBE liaison to compile the list.

5. The recipient may wish to use available lists such as those of the EPA Regional Office, adjacent municipalities, appropriate minority/women associations. Names of these agencies with address and phone number should also be included on the recipient's source list.

   a. Providing necessary and appropriate liaison services between MBE/ WBEs and prospective bidders/offerors. (Liaison service should not be delegated to consultants where a potential for conflict of interest exists.)

6. When project requirements permit, establishing delivery schedules which encourage participation of MBE/WBEs.

7. Using the services and assistance of the Small Business Administration (SBA), the Minority Business Development Agency (MBDA), and other federal, State and local agencies when appropriate.

B. Unless otherwise provided in the specifications, compliance with the MBE/WBE requirement in the regulations is a matter of bidder/offeror responsibility.

C. The recipient is responsible for monitoring work in progress to ensure that MBE and WBE subcontractors and joint venturers are actually participating in the performance of the subcontract or joint venture contract and to insure that the consultant/contractor is fulfilling its obligations with respect to MBE/WBE requirements under the contract.

D. As part of the documentation required under 40 CFR 31.36(b)(9), the recipient shall maintain and update records of MBE/WBE participation and supply data to the delegated State when requested. Such records may include:

1. Name of MBE/WBEs being utilized;
2. Work designated to be performed by MBE/WBE;
3. Dollar value of that work;
4. Portion of project being performed by MBEs and WBEs.

V. BIDDER AND OFFEROR RESPONSIBILITIES

A. Affirmative Steps: Activities during preparation of bids and offers. Bidders/offerors shall take affirmative steps in compliance with the regulations, prior to submission of bids or closing date for receipt of initial offers, to encourage participation in projects by MBEs and WBEs. Such efforts include:

1. When feasible, segmenting total work requirements to permit maximum MBE/WBE participation.

2. Assuring the MBEs and WBEs are solicited whenever they are potential sources of goods or services. This step may include:

   a. Sending letters or making other personal contacts with MBEs and WBEs, (e.g. those whose names appear on lists prepared by EPA or the recipient and other MBE/WBEs known to the bidder/offeror). MBEs and WBEs should be contacted when other potential subcontractors are contacted, within reasonable time prior to bid submission or closing date for receipt of initial offers. Those letters or other contacts should communicate the following:

      1) Specific description of the work to be subcontracted;
      2) How and where to obtain a copy of plans and specifications or other detailed information needed to prepare a detailed price quotation;
      3) Date the quotation is due the bidder/offeror;
      4) Name, address, and phone number of the person in the bidder/offeror's firm whom the prospective MBE/WBE subcontractor should contact for additional information.

b. Sending letters or making other personal contacts with local, State, federal and private agencies and MBE/WBE associations relevant to the project. Such contacts should provide the same information provided in the direct contacts to MBE/WBE firms.

3. Where feasible, establishing delivery schedules which will encourage participation by MBEs and WBEs.

B. Bidders/offerors must demonstrate compliance with the MBE/WBE requirements in order to be deemed responsible. Demonstration of compliance may include the following information, however the recipient may specify other methods of demonstrating compliance:
   1. Names, addresses and phone numbers of MBE/WBEs expected to perform work.
   2. Work to be performed by the MBEs and WBEs.
   3. Aggregate dollar amount of work to be performed by MBEs and WBEs, showing aggregate to MBEs and aggregate to WBEs separately.
   4. Description of contacts to MBE and WBE organizations, agencies and associations which service MBEs/WBEs, including names of organizations, agencies and associations and dates of contact.
   5. Description of contacts to MBEs and WBEs, including number of contacts, fields, (i.e. equipment or material supplier, excavators, transport serviced, electrical subcontractors, plumbers, etc.) and dates of contacts.

C. Successful bidders/offerors should take reasonable affirmative steps to subcontract with MBEs and WBEs whenever additional subcontracting opportunities arise during the performance of the contract.

VI. MBE AND WBE RESPONSIBILITIES

MBEs and WBEs are responsible for promoting themselves and taking the initiative to obtain contracts and subcontracts, and for encouraging joint venture arrangements. MBEs/WBEs interested in working on EPA funded projects are strongly encouraged to take the following steps:

A. Submit information to the recipients to identify status as a MBE/WBE.
B. Become certified as MBE/WBE under available State of federal agency procedures.
C. Contact federal, State, and local MBE/WBE liaison offices to obtain information on potential jobs.
D. Provide capability statements to State agencies, recipients, consulting engineers, and contractors, stating type(s) of work performed by the firm, size of job that the firm can handle, bonding information, and any special skills.
E. Make every effort to establish contacts and relationships with contractors for potential future business, including attending pre-bid conferences and subscribing to industry and trade journals.
F. Contact EPA Regional offices or appropriate State offices to obtain information on planned EPA funded projects.
G. Respond promptly to solicitation requests.

VII. REMEDIES FFOR NONCOMPLIANCE

A. Protests. A bidder/offeror for EPA funded work or MBE/WBE with an adversely affected direct financial interest may file a bid protest with the recipient pursuant to EPA procurement regulations 40 CFR 31.36(b)(12). These procedures are available to protest alleged violation of federal MBE/WBE requirements and may not be used to enforce local or State MBE/WBE requirements.
B. Upon a finding by EPA that a recipient, bidder/offeror, consultant, contractor or subcontractor has not complied with the MBE/WBE requirements of EPA regulations, EPA may invoke any and all sanctions and remedies specified in EPA regulations.

VIII. STATE OR LOCAL LAW

Nothing in this program prevents a State or recipient from applying more stringent MBE/WBE requirements or procurement obligations which pertain to bid responsiveness or percentage of MBE and WBE participation.

US ENVIRONMENTAL PROTECTION AGENCY

CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to contracts, subcontracts, and agreements with the applicants who are themselves performing Federally assisted construction contracts, exceeding $10,000, which are not exempt from the provisions of the Equal Opportunity Clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR CERTIFICATION OF NONSEGREGATED FACILITIES

A Certification of Non-segregated Facilities, as required by the May 9, 1967 order (33 F.R. 7808, May 28, 1968) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding $10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Signature _____ Date _____

Name and Title of Signer (Please Type) _____

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

EPA-7 5720-4.2 (6/2/77)

Recipient Certification - Anti-Lobbying Act of 1990

US Department of the Interior

Certification Regarding Lobbying

This certification is required by Section 1352, title 31, US Code, entitled "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions."

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

Certification for Contracts, Grants, Loans, and Agreements

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

1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to person for influencing or attempting to influence an officer or employee of any agency, a Member Congress, and officer or employee of Congress, or an employee of a Member of Congress in with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3) The undersigned shall require that of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

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

Signature _____ Date _____

Instructions for Certification

1. This certification and a disclosure form should be filed by each person as required, with each submission that initiates agency consideration of such person for: (1) award of a Federal contract, grant, or cooperative agreement exceeding $100,000 or (2) an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding $ 150,000.

2. This certification and a disclosure form should be filed by each person as required, upon receipt by such person of(1) a Federal contract, grant, or cooperative agreement exceeding $100,000; or (2) a loan or a commitment providing for the United States to insure or guarantee a loan exceeding $150,000, unless such person previously filed a certification, and a disclosure form, if required, at the time agency consideration was initiated.

3. Any person who requests or receives from a person referred to in paragraphs (1) and (2) above: (1) a subcontract exceeding $100,000 at any tier under a Federal contract; (2) a subgrant, contract, or subcontract exceeding $100,000 at any tier under a Federal grant (3) a contract or subcontract exceeding $100,000 at any tier under a Federal loan exceeding $150,000; or, (4) a contract or subcontract exceeding $100,000 at any tier under a Federal cooperative agreement, shall file a certification, and a disclosure form, as required, to the next tier above.

4. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in paragraphs (1) or (2) above. That Person shall forward all disclosure forms to the appropriate Bureau/Office within the Department of the Interior.

5. Any certification or disclosure form flied under paragraph (4) above shall be treated as a material representation of fact upon which all receiving tiers shall rely. All liability arising from an erroneous representation shall be borne solely by the tier filing that representation and shall not be shared by any tier to which the erroneous representation is forwarded. Submitting an erroneous or disclosure constitutes a failure to file the required certification or disclosure, respectively. If a person fails to file a required certification or disclosure, the United States may pursue all available remedies, including those authorized by Section 1352, title 31. US Code.

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subwardee or prime federal recipient, at the initiation or receipt of a covered federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with a covered federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered federal action.

2. Identify the status of the covered federal action.

3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered federal action.

4. Enter the full name, address, city, state and zip code of the reporting entity. Include congressional district, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee (e.g., the first subawardee of the prime is the first tier). Subawards include, but are not limited to, subcontracts, subgrants and contract awards under grants.

5. If the organization filling the report in Item 4 checks “Subawardee,” then enter the full name, address, city, state and zip code of the prime federal recipient. Include congressional district, if known.

6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the federal program name or description for the covered federal action (Item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate federal identifying number available for the federal action identified in Item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant or loan award number; the application/proposal control number assigned by the federal agency). Include prefixes (e.g., “RFP-DE-90-001”).

9. For a covered federal action where there has been an award or loan commitment by the federal agency, enter the federal amount of the award/loan commitment for the prime entity identified in Item 4 or 5.

10. a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in Item 4 to influence the covered federal action.

b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter last name, first name and middle initial (MI).

11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (Item 4) to the lobbying entity (Item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.

12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.

13. Check the appropriate box(es). Check all boxes that apply. If other, specify name.

14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with federal officials. Identify the federal official(s) or employee(s) contacted or the officer(s), employee(s), or member(s) of Congress that were contacted.

15. Check whether or not a SF-LLL-A Continuation Sheet(s) is/are attached.

16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

(See reverse for public burden disclosure)

1. Type of Federal Action:	**2. Status of Federal Action:**	**3. Report Type:**
☐ a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	☐ a. Bid/Offer/Application b. Initial Award c. Post-award	☐ a. Initial/Filing b. material change **For Material Change Only:** year _____ quarter _____ date of last report _____

4. Name and Address of Reporting Entity: ☐ Prime ☐ Subawardee Tier_____, *if known* **Congressional District**, *if known*	**5. If Reporting Entity in No. 4 is Subawardee, enter name and Address of Prime:** **Congressional District**, *if known*
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*
8. Federal Action Number, if known:	**9. Award Amount, if known:** **$**
10. a. Name and Address of Lobbying Entity: *(if individual, last name, first name, MI)* (Attach Continuation Sheet(s) SF-LLL-A if Necessary)	**b. Individuals Performing Services (***including address if different from No. 10a) (last name, first name, MI)*
11. Amount of Payment *(check all that apply):* $_____ ☐ actual ☐ planned	**12. Form of Payment** *(check all that apply):* ☐ a. cash ☐ b. in-kind; specify: nature_____ value _____

13. Type of Payment *(check all that apply):*

☐ a. retainer
☐ b. one-time fee
☐ c. commission
☐ d. contingent fee
☐ e. deferred
☐ f. other; specify: _____

14. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or Member(s) contracted, for Payment indicated in item 11:

(Attach Continuation Sheet(s) SF-LLL-A if Necessary)

15. Continuation Sheet(s) SF-LLL-A attached: ☐ **Yes** ☐ **No**

16: The information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of facts upon which evidence was placed by the above when this transaction was made or started into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the congress semi-annually and will be available for public inspection. Any person which fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:** _____ **Print Name:** _____ **Title:** _____
For Federal Use Only:	**Authorized for local reproduction** **Standard Form-LLL**

Telephone No.: _____ **Date:** _____

Approved By OMB
0348-0046

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Reporting Entity: _____ Page _____ of _____

Authorized for Local Reproduction
Standard Form LLL-A

NONDISCRIMINATION IN EMPLOYMENT

(Instructions for Bidders)

By the submission of its bid, each bidder acknowledges that he understands and agrees to be bound by the equal opportunity requirements of EPA regulations (40 CFR Part 8, particularly Section 8.4(b)), which shall be applicable throughout the performance of work under any contract awarded pursuant to this solicitation. Each bidder agrees that if awarded a contract, it will similarly bind contractually each subcontractor. In implementation of the foregoing policies, each bidder further understands and agrees that if awarded a contract, it must engage in affirmative action directed at promoting and ensuring equal employment opportunity in the workforce used under the contract (and that it must require contractually the same effort of all subcontractors whose subcontracts exceed $ 10,000). The bidder understands and agrees that “affirmative action” as used herein Shall constitute a good faith effort to achieve and maintain that amount of minority employment in the on-site workforce used on the project which corresponds, for each trade used, to the minority population in the serving labor market area from which workers are reasonably available for hire for the project.

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

PROPOSAL GUARANTEE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____

of _____ as PRINCIPAL,

and _____

of _____ as SURETY(S),

are hereby held and firmly bound unto the state of Iowa in the penal sum of:

Fifty thousand Dollars $ 50,000.00

for the payment, whereof, the said PRINCIPAL and SURETY(S) bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that whereas the PRINCIPAL is herewith submitting to the state of Iowa, acting by and through the Iowa Department of Natural Resources, hereinafter called the DEPARTMENT, its sealed proposal for a contract for the

_____

_____

_____

at _____ in _____ County, Iowa.

NOW THEREFORE,
the conditions of this obligation are such that, if said proposal is rejected by the DEPARTMENT, or if said proposal is accepted by the DEPARTMENT and the PRINCIPAL shall enter into a contract in the form specified by the DEPARTMENT in accordance with the terms of the proposal and shall furnish a bond for the faithful performance of said contract in the form specified by the DEPARTMENT, this obligation shall be null and void. Otherwise it shall remain in full force and effect.

In the event that the said proposal is accepted by the DEPARTMENT and the PRINCIPAL shall fail to enter into the contract as defined herein or shall fail to furnish the performance bond as noted above within thirty (30) days of the approval of the award, the PRINCIPAL and SURETY(S) agree to forfeit to the DEPARTMENT the penal sum herein mentioned, it being understood that the liability of the SURETY(S) shall in no event exceed the penal sum of this obligation.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this _____ day of _____ , 20 _____ , the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL:	SURETY:
_____	_____
_____	_____
_____	_____
_____	_____

If a partnership all partners must sign.

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

CONTRACT (Capital Improvement)

(Project Location)
(Project Description)
Project No.
(County), Iowa

THIS AGREEMENT, made this _____ day of, _____ , 20 _____ by and between the state of Iowa acting through the Department of Natural Resources hereinafter called the **DEPARTMENT** and:

_____ **located at** _____

hereinafter called the **CONTRACTOR**

WITNESSETH: That the **DEPARTMENT** agrees to pay the **CONTRACTOR** the contract price provided herein for the fulfillment of the work and the performance of the covenants set forth herein, and the **CONTRACTOR** agrees with the **DEPARTMENT** to commence and complete the project described as follows:

For the Sum of: _____ **Dollars ($)** _____
and all extra work in connection therewith, all in accordance with the terms and conditions herein contained: and to furnish at the **CONTRACTOR'S** own proper cost and expense, all material, equipment, labor, insurance, and other accessories and services necessary to construct and complete, in a workmanlike manner, ready for continuous operation, the above mentioned project. The work shall be performed in accordance with the requirements and provisions of the following documents, all of which are made a part hereof and collectively evidence and constitute the contract:

1. Notice to Bidders.
2. Instructions to bidders.
3. DNR Standard Specifications and Current Supplemental Specifications
4. Project Specifications Including Addenda Number _____ Through _____
5. Drawings, Sheet Number _____ Through _____ Inclusive
6. Contractor's Proposal.
7. Proposal Guarantee Bond.
8. Performance Bond.
9. This Instrument.
10. Modifications or Change Orders pursuant to DNR Standard Specifications
11. Resident Bidder Preference Certification on Non-Federal-Aid Projects

The parties to this contract understand that time of completion of the work under this contract is the essence to the contract. The **CONTRACTOR** hereby agrees to commence work under this contract in accordance with Section 1108 of the DNR Standard

Specifications and to complete all the work by _____

The **CONTRACTOR** hereby agrees that liquidated damages in the amount of _____ Dollars $ _____ shall be retained or assessed against the CONTRACTOR for each day and every day the completion of the work is delayed beyond the time specified herein, not as a penalty, but as a mutually agreed to, predetermined amount to reimburse the **DEPARTMENT** for salaries of engineers and reviewers, clerk hire, interest charged during the period for delays and loss of use.

It is understood that the **CONTRACTOR** consents to the jurisdiction of the courts of Iowa, to hear, determine and render judgment as to any controversy arising hereunder, and that this contract shall be governed by, and construed according to, the laws of the state of Iowa.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, in the day and year first above mentioned.

FOR THE DEPARTMENT:

_____
Director

This contract was approved by the **NATURAL RESOURCES COMMISSION** at its meeting held on

_____
(Date)

FOR THE CONTRACTOR:

_____
(Signature and Title)

_____
(Firm)

_____
(Address and Zip Code)

Seal if by a Corporation:

Identification Number _____

Soc. Sec. No. _____

Or Fed. I. D. No. _____

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____

of _____ as PRINCIPAL,

and _____

of _____ as SURETY(S),

are hereby held and firmly bound unto the state of Iowa in the penal sum of:

_____ Dollars $ _____

for the payment, whereof, the said PRINCIPAL and SURETY(S) bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that whereas the PRINCIPAL entered a certain contract, hereto attached, and made part, hereof to the state of Iowa, acting by and through the Iowa Department of Natural Resources, hereinafter called the DEPARTMENT,

dated _____ for the _____

at _____ in _____ County, Iowa.

NOW THEREFORE,
the conditions of this obligation are such that, if the PRINCIPAL shall faithfully perform the contract in accordance with the plans, specifications and contract documents, and shall fully indemnify and save harmless the state of Iowa from all cost and damage which the state of Iowa may suffer by reason of the PRINCIPAL's default or failure to do so and shall fully reimburse and repay the state of Iowa all outlay and expenses which the state of Iowa may incur in making good any such default, then this obligation shall be null and void, otherwise it shall remain in force and effect.

In the event that the PRINCIPAL is in default under this contract as defined herein, the DEPARTMENT shall by written notice inform the PRINCIPAL that this contract is in default; and may, at its option, without process or action at law:

1. Take over all or any portion of the work and complete it either by day labor or reletting the work. The DEPARTMENT may retain all material, equipment and tools on the work, at a rental which it considers reasonable, until the work has been completed.
2. Allow the surety to take over the work within fifteen (15) days and assume completion of said contract and become entitled to the balance of the contract price.
3. Allow the PRINCIPAL to complete the contract.

As required by Chapter 573 of the Code of Iowa.

1. The PRINCIPAL SURETY(S) on this bond hereby agree to pay all persons, firms or corporations having contracts directly with the PRINCIPAL or with subcontractors, all just claims due them for labor performed or material furnished, in the performance of the contract on account of which this bond is given, when the same are not satisfied out of the portion of the contract price shall have been established as provided by law.
2. Every Surety on this bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notices:
    a. To any extension of time to the contractor in which to perform the contract.
    b. To any change in the plans, specifications, or contract, when such changes does not involve an increase of more than 20 percent of the total contract price, and then only as to such excess increase.
    c. That no provision of this bond or any other contract shall be valid which limits less than one year from the time of the acceptance of the work, the right to sue on this bond for defect in workmanship or material not discovered or known to the DEPARTMENT at the time such work was accepted.

No provision of this bond or any other contract shall be valid which limits to less than five years after the acceptance of the work, the right to sue on this bond for defects in workmanship or material in connection with paving or concrete work.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this _____ day of _____ , 20 _____ , the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL:	SURETY:
_____	_____
_____	_____
_____	_____
_____	_____

If a partnership all partners must sign.

This bond approved by the Iowa Department of Natural Resources this _____ day of _____ , 20 _____

By: _____
Director

IOWA DEPARTMENT OF NATURAL RESOURCES
GENERAL COVENANTS AND PROVISIONS
SECTION NO. 00700
JANUARY 1993 (Revised 12/12/2023)

This section consists of the general provisions applying to all types of construction and maintenance as set forth in the following sections

PART 1100. DEFINITIONS

1100.01 GENERAL

A. Whenever in these specifications or in other contract documents, the following definitions, or terms or both, or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:
B. In order to avoid cumbersome and confusing repetition of expressions in these specifications, it is provided that whenever anything is, or is to be done, if, as, or, when, or where "contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable , unacceptable, suitable, accepted, satisfactory , unsatisfactory, sufficient, insufficient, rejected, or condemned," it shall be understood as if the expression were followed by the words "by the Engineer" or "to the Engineer."
C. The titles or headings of the sections and articles herein, or referred to on the plans, are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.
D. Working titles and pronouns used for any person referred to in these specifications may be used with a masculine gender for the sake of brevity and are intended to refer to persons of either sex.

1100.02 DEFINITIONS OF ABBREVIATIONS

A. Whenever the following abbreviations are used in these specifications or on the plans, they are to be construed the same as the respective expressions represented.

AAN - American Association of Nurserymen
AAR - Association of American Railroads
AASHTO (or AASHO) - American Association of State Highway and Transportation Officials
ACI - American Concrete Institute
AIA - American Institute of Architects
ANSI - American National Standards Institute
APWA - American Public Works Association
ARA - American Railway Association
AREA - American Railway Engineering Association
ASCE - American Society of Civil Engineers
ASLA - American Society of Landscape Architects
ASTM - American Society of Testing and Materials
AWPA - American Wood Preservers Association
AWS - American Welding Society
AWWA - American Water Works Association
CFR - Code of Federal Regulations
DNR - Iowa Department of Natural Resources
DOT - Iowa Department of Transportation

EEI - Edison Electric Institute
EPA - Environmental Protection Agency
FHWA - Federal Highway Administration
FSS - Federal Specifications and Standards
IEES - Institute of Electrical and Electronics Engineers
IES - Illuminating Engineering Society
ICEA (or IPCEA) - Insulated Cable Engineers Association
MUTCD - Manual on Uniform Traffic Control Devices
NEC - National Electrical Code
NECA - National Electrical Contractors Association
NEMA - National Electrical Manufacturers Association
NFPA - National Fire Protection Association
NRC - Natural Resource Commission
SBC - State Building Code
UBC - Uniform Building Code
UL - Underwriters Laboratories, Incorporated
UMC - Uniform Mechanical Code
UPC - Uniform Plumbing Code
US - United States
USC - United State Code

B. Abbreviations may be used for materials and classes of work:
AC - Asphalt cement
ACC - Asphalt cement concrete
ATB - Asphalt treated base
BSC - Bituminous seal coat
BTA - Bituminous treated aggregate
CTG - Cement treated granular
PCC - Portland cement concrete
SAS - Soil-aggregate subbase
SLS - Soil-lime subbase

1100.03 DEFINITIONS OF TERMS

1. Acceptable Work - Work in reasonably close conformance with the contract requirements.
2. Addendum or Addenda - Changes, revisions, or clarifications of the specifications of contract documents which have been issued to prospective bidders, prior to the time of receiving bids.
3. Advertisement - The public announcements, publications, or solicitations as required by the Contracting Authority, inviting bids for work to be performed.
4. Approval of Award - The acceptance by the Contracting Authority of a bid.
5. Approximate Starting Date - A calendar day shown on the proposal on which it is anticipated, at the time of the letting, that conditions will be such as to permit the Contractor to commence work.
6. Assignment of Contract -The written agreement whereby the Contractor sells, assigns, or transfers his rights in the contract to any person, firm, or corporation.
7. Award - The execution of the contract.
8. Bidder - An individual, firm, corporation, or joint venture submitting a bid for the advertised work.
9. Bureau Chief – The individual appointed by the Iowa Department of Natural Resources as the head of the Land and Waters bureau.
10. Calendar Day - Every day shown on the calendar.
11. Change Order - A written order to the Contractor, signed by the Engineer, ordering a change which has been found necessary in the work from that originally shown by the plans and specifications. Change orders duly signed and executed by the Contractor constitute authorized modifications of the contract.
12. Channel - A natural or artificial water course.

13. Classes of Work - The divisions made for the purpose of measuring and paying for labor to be performed or materials to be furnished according to the methods of construction involved, as indicated by the items for which bids have been received for each specific contract.
14. Commencement of Work - Work will be considered commenced when the Contractor's operations are started on items of work covered by the contract documents and which require inspection, or when the Contractor notifies the Engineer, and the Engineer agrees, that the Contractor's equipment and personnel are available at the site, but his operations are prevented by weather or soil conditions.
15. Commission - The state Natural Resources Commission as constituted under the laws of the state of Iowa (which is the party of the first part in the contract, let in behalf of the State, of which these specifications are a part).
16. Commissioner - A member of the state Natural Resources Commission.
17. Contract (Also Contract Document) - The written agreement between the Contracting Authority and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment. The contract includes the notice to bidders, proposal, contract form, and contract bonds specifications, supplemental specifications, special provisions, all items covered on the table of contents, plans, notice to proceed, and any change orders and agreements which are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.
18. Contract Item (Pay Item) - A specifically described unit of work for which a price is provided in the contract.
19. Contract Period (Also Contract Time) - The number of working days or calendar days allowed for completion of the contract, including authorized time extensions. In case a calendar date of completion is shown in the proposal, in lieu of or in addition to the working days, the contract shall be completed by that date.
20. Contract Sum - The aggregate sum obtained by totaling the amounts arrived at by multiplying the number of units of each class of work, as shown in the contracts by the unit price specified in the contract for that class of work.
21. Contracting Authority - The governmental body, board, commission, or officer having authority to award a contract.
22. Contractor - The individual, firm, corporation, or joint venture contracting with the Contracting Authority for performance of prescribed work.
23. Contractor Registration - The registration number issued by the Division of Labor Service, in accordance with Chapter 91C of the Code of Iowa.
24. Deficient Work - Work not in reasonably close conformance with the contract requirements, or otherwise inferior, but in the opinion of the Engineer, reasonably acceptable for its intended use and allowed to remain in place.
25. Department of Economic Development - As defined in Chapter 15, Code of Iowa.
26. Department of Labor Services - As defined in Chapter 91, Code of Iowa.
27. Department of Natural Resources (Department)- The Department of Natural Resources, as defined in Chapter 455A, Code of Iowa.
28. Department of Revenue and Finance - As defined in Chapter 421, Code of Iowa.
29. Department of Transportation -The Department of Transportation, as defined in Chapter 307, Code of Iowa.
30. Director - The duly appointed executive officer for the Department of Natural Resources.
31. Drainage Ditch -An artificially constructed, open depression, other than a road ditch, which is constructed for the purpose of carrying surface water runoff.
32. Drawings (or Plans) - The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, including modifications, altered plan, revisions, and amendments, which show the locations characters dimensions, and details of the work to be done.
33. Employee - Any person working on the project, mentioned in the contract of which these specifications are a party, and who is under the direction or control, or receives compensation from, the Contractor or subcontractor.
34. Engineer - The Bureau Chief, or other authorized representative of the Contracting Authority, acting within the scope of the particular duties assigned, or of the authority given.
35. Equipment - All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and tools and apparatus necessary for the proper construction and acceptable completion of the work.

36. Extra Work - Work not provided for in the contract, as awarded, but deemed essential to the satisfactory completion of the contract within its intended scope and authorized by the Engineer. Extra work shall not include additional materials, equipment, and labor used due to natural variations in the surface and subsurface conditions, except as specifically provided for elsewhere in the contract documents.
37. Extra Work Order - A change order concerning the performance of work or furnishing of materials involving additional work. Such additional work may be performed at agreed prices, or on a force-account basis, as provided elsewhere in these contract documents.
38. Independent Contractor - Any person, firm, or corporation who contracts with the Contractor to perform a service for which the basis of payment is in terms of units of service rather than salary or wages.
39. Inspector - An employee of the Contracting Authority and who is the authorized representative of the Engineer, assigned to make detailed inspections of any or all portions of the work, or materials included in the work.
40. Instruction to Bidders - The clauses setting forth in detail the information relative to the proposed work and requirements for the submission of proposals.
41. Invitation for Bids - See Notice to Bidders.
42. Item -See Contract Item.
43. Joint Venture - Two or more individuals, films or corporations combining any equipment, personnel or finances for the purpose of submitting a single bid.
44. Laboratory - The testing laboratory of the Contracting Authority, or any other testing laboratory which may be designated or approved by the Engineer.
45. Lands Acquired for the Work - The land area, reserved or secured by the Contracting Authority, upon which to construct the work, or where to obtain material therefrom.
46. Major Item of Work - Any contract item (Pay item) for which the original contract amount plus authorized additions is more than 10% of the total original contract sum or $50,000, whichever is less.
47. Materials - Any substances specified for use in the construction of the project and its appurtenances.
48. Notice to Bidders - That portion of the contract documents, prepared and furnished by the Contracting Authority for the information of bidders submitting proposals, which notice specifies provisions, requirements, and instructions pertaining to the method, manner, and time of submitting bids.
49. Notice to Proceed - Written notice to the Contractor to proceed with the contract work including, when applicable, the date of beginning of contract time.
50. Official Publications - The official publications are the formal resolutions and notices relative to the proposed improvement that are required by law to be published in a prescribed manner and that have been published in accordance with the statutes relating to them. Official publications area by statutes vested with all of the force and effect of contract obligations.
51. Owner - The state of Iowa, acting through the Iowa Department of Natural Resources as constituted under the laws of the state of Iowa.
52. Performance Bond - The bond executed by the Contractor and its surety in favor of the owner, guaranteeing the faithful performance of the contract and the payment of all debts pertaining to the work.
53. Plans (or Drawings) - The approved plans, profiles, typical cross sections, working drawings, and supplemental drawings, or exact reproductions thereof, including modifications, altered plan, revisions, and amendments, which show the locations characters dimensions, and details of the work to be done.
54. Project - One or more correlated improvements which constitute the complete improvement of a designated park, recreational reserve, state monument, lake, reserve, game area, fish hatchery, parkway, or other area under jurisdiction of the Department of Natural Resources.
55. Project Engineer - The representative of the Department of Natural Resources, regardless of actual title, directly in change of the work.
56. Proposal - The formal offer of a bidder, on the prescribed form, to perform the work and to furnish the labor and materials at the prices quoted.
57. Proposal Form - The approved form on which the Contracting Authority requires formal bids to be prepared and submitted for the work.
58. Proposal Guarantee - The security furnished by the bidder with the proposal for a project(s), as guaranty the bidder will execute the contract for the work if the proposal is accepted..
59. Reasonably Close Conformity - Reasonably close conformity means compliance with reasonable and customary manufacturing and construction tolerances where working tolerances are not specified. Where working

tolerances are specified, reasonably close conformity means compliance with such working tolerances. Without detracting from the complete and absolute discretion of the Engineer to insist upon such working tolerances as establishing reasonably close conformity, the Engineer may accept variations beyond such tolerances, as reasonably close conformity, where they will not materially affect value or utility of the work and the interest of the State.

60. Right-of-Way - The land area, the right to possession of which is secured or reserved by the Contracting Authority for road purposes.
61. Road - A general term denoting a public way for vehicular travel, including the entire area within the right-of-way.
62. Shop drawings - See “working drawings”.
63. Special Provisions - Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project, method and manner.
64. Specifications - The requirements contained herein and in any supplemental specifications, or special provisions applying to the contract, and pertaining to the method and manner of performing the work, or to the quantity and quality of the materials to be furnished under the contract.
65. Specified Completion Date - The date specified in the proposal for completion of the work. After work has commenced or if the completion date is not specified, the last day of the contract period shall be the completion date.
66. Specified Starting Date - A calendar day shown on the proposal on which date commencement of the work is expected.
67. State - The State of Iowa acting through its authorized representative.
68. Station - One hundred lineal feet.
69. Subcontractor - Any individual, firm, or corporation to whom the Contractor, with the written consent of the Contracting Authority, sublets any part of the contract.
70. Superintendent - The Contractor’s authorized representative in responsible charge of the work.
71. Supplemental Agreement - Written agreement between the Contractor and the Contracting Authority, modifying the original contract.
72. Surety - The corporation, partnership, or individual, other than the Contractor, executing a bond furnished by the Contractor.
73. Targeted Small Business - Any enterprise, located in the state of Iowa, which is operated for profits under a single management, and which is 51 percent owned, operated, and actively managed by one or more women or minority persons, and has been certified by the Iowa Economic Development Authority.
74. Unacceptable Work - Work not in reasonably close conformance with the contract requirements and ordered to be removed and replaced.
75. Unauthorized Work - Work neither contemplated by the contract documents nor authorized by the Engineer, and work done contrary to the instructions of the Engineer.
76. Work - Work shall mean the furnishing of all labor, materials, equipment, and other incidentals, as detailed in the plans, specifications, and by the Engineer, necessary or convenient to the successful completion of the project and the carrying out of all the duties and obligations imposed by the contract.
77. Work Order - A written order, signed by the Engineer, of contractual status, requiring performance by the Contractor without negotiation of any sort, and which may involve starting, resuming, or the suspension of work. (Not to be confused with extra work order.)
78. Working Day - Prior to commencement of work, beginning on the date designated in the notice to proceeds or beginning on the specified starting date, or as soon thereafter as provided in the specifications, a day other than Saturday, Sunday, or another recognized legal holiday. Any weekdays exclusive of Saturdays, Sundays, or recognized legal holidays on which weather or other conditions not under control of the Contractor, will permit construction operations to proceed for not less than 3/4 of a normal workday in the performance of a controlling item of work. If such conditions permit operations to proceed for at least 1/2 but less than 3/4 of the normal working hours, 1/2 of a working day will be counted. The days counted will exclude Saturdays, Sundays, and recognized legal holidays the Contractor does not work, but will include Saturdays, Sundays, and recognized legal holidays the Contractor does work. Nonproductive work that does not require inspection may be done on Saturdays with no time charged. Working days will not be charged for the day before or after a holiday when the contract documents specifically prohibit work and the Contractor does not work. Working days will not be

counted during periods of suspension of work ordered by the Engineer, except when the suspension is a result of a violation of terms of the contract.

79. Working Drawings - Stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data which the Contractor is required to submit to the Engineer for approval. Also referred to as "shop drawings". After approval by the Engineer the working drawings became a part of the plans.

PART 1101. INSTRUCTIONS TO BIDDERS

1101.01 GENERAL

A. These instructions are intended to serve as a guide to the requirements with which the bidder must comply prior to and in submitting a proposal, including various "conditions" affecting the award of the contract. They do not in themselves inform the bidder of all the requirements that must be complied with under the contract.

B. The time for bid openings shall be the prevailing Central Standard or Daylight Savings time in force at Des Moines, Iowa on the date set forth in the Notice to Bidders.

C. Before submitting a bid, the bidder shall examine all the drawings and specifications enumerated in the table of contents of this project manual. The successful bidder will be required to do all the work that is shown on the drawings, mentioned in the specifications, or reasonably implied as necessary to complete this contract.

D. The bidder shall visit and examine the site to become acquainted with the adjacent areas, means of approach to the site, conditions of the actual job site, and the facilities for delivering, storing, placing, and handling of materials and equipment.

E. Failure to visit the site or failure to examine any and all contract documents will not relieve the successful bidder from the necessity of furnishing any materials or equipment, or performing any work that may be required to complete the work, in accordance with the drawings and specifications. Neglect of the above requirements will not be accepted as reason for delay in the work or additional compensation.

1101.02 DRAWINGS AND SPECIFICATIONS

A. The drawing and specifications, which are part of this contract, are enumerated in the table of contents of this project manual.

B. It is the responsibility of the bidder to examine the plans, proposal form, specifications, supplemental specifications, special provisions, the site of the works and the state of the work of other contractors on the project to assure that all requirements of the contract and the plans are fully understood. It is the bidder's responsibility to satisfy herself/himself as to the nature of the work and all reasonably ascertainable conditions that may affect his/her performance under the contract.

1101.03 INTERPRETATION

A. Nonverbal explanation or instructions will be given in regard to the meaning of the drawings or specifications during the bid period. Bidders shall bring all inadequacies, omissions, or conflicts to the Engineer's attention, at least ten days before the date set for the bidding. Prompt clarification will be supplied to all bidders of record by addendum.

B. Neither the Department of Natural Resources nor the Engineer will be responsible for verbal instructions.

C. Failure to request clarification or interpretation of the drawings and specifications will not relieve the successful bidder of responsibility. Signing of the contract will be considered as an implicit indication that the Contractor has thorough understanding of the scope of the work and comprehension of the contract documents.

1101.04 CONTENTS OF PROPOSAL FORMS

A. Bidders will be furnished with proposal forms stating the location and description of the proposed work, the approximate quantities of work to be performed or materials to be furnished, the form and amount of the required proposal guarantee, and the contract period.

B. The statement, "By virtue of statutory authority, preference will be given to products, provisions grown and coal produced within the state of Iowa where applicable," which is on the face of the proposal form shall not be applicable to contracts involving Federal-aid participation in construction.

C. The following bidding and letting regulations shall apply to all construction projects for which the Department receives bids.

1. Contracts will be recommended for approval for award on the basis of the greatest total savings in the public interest. The determination of which projects are to be awarded will be based on the approval by the appropriate Commission or other contracting agency.
2. Contractors shall not be permitted to tie projects or to designate on the bidding proposal the limit of the amount they will accept.

1101.05 PREPARATION OF PROPOSALS

A. Only signed proposals, submitted on forms furnished by the Contracting Authority, will be considered, and the bidder will be assumed to have familiarized himself with the requirements of all applicable contract documents. To insure consideration, the bidder shall specify a unit price in figures for each pay item for which a quantity is given and shall also show the products for the respective unit prices and quantities, written in figures in the column provided for the purposes and the total amount of the proposal obtained by adding the amounts of the several items. All the unit price figures shall be in ink or typed. If there is a discrepancy between unit bid prices, extensions, or total amounts of bid, the unit bid prices shall govern.

B. If the proposal is made by a partnership or corporations the name of the partnership or corporations its agents and its principal place of business shall be shown. The proposal shall be signed by an authorized agent of the partnership of corporation.

C. If the proposal is made on the basis of a joint bid, the proposal shall be signed by each of the joint bidders, or in the case of a firms' partnerships or corporations by an authorized agent for such firms' partnerships or corporations and the principal place of business for each shall be shown.

D. By signing and submitting the proposal, the bidder gives an unsworn declaration on behalf of each person, firm, association, partnership, or corporation submitting a proposal, certifying that such person, firm, association, partnership, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract, and is not under debarment currently by the Federal government for a criminal violation which is reasonably related to bidding and contracting procedures.

E. The attention of the bidders for the work covered by a proposal and referred to as this work, is directed to the fact that contracts for work other than the work covered in this proposal may have been awarded, are being advertised for letting on the same date as this work, or may be awarded in the future.

F. Completion of work covered by this proposal may be contingent upon certain work covered by other contracts being performed on the project in advance of this work, likewise, completion of work covered by other contracts may be dependent upon completion of work covered by this proposal.

G. The contract documents will list types of work involving other contracts anticipated to be let on the same letting date or same time within the contract period anticipated for this work. The contract documents will also list other governmental agencies, railroads, utilities, or other parties who will have work with which it is known that this work must be coordinated.

H. The bidder is expected to be familiar with work already in progress or previously let on this project, the contract periods, the progress being made, and any other conditions regarding that work which may affect his/her bid or his/her performance under this contract.

I. Cooperation and coordination of all contractors and other agencies authorized to do work on the project will be required.

J. The bidder for this work acknowledges these facts and agrees that it is in the public interest to have the work of certain contracts and agencies performed concurrently rather than consecutively. The bidder further agrees to cooperate and coordinate his work with that of other contractors or agencies to the mutual interest of all parties doing work on the project, whether by contract with the State, County, or City or necessary work being done by governmental agency or utility force.

K. By the submission of a bid on this works the bidder acknowledges and agrees that an investigation and inquiry has been made regarding the contracts for work with which this work must be coordinated.

L. In the event disputes arise between contractors or other agencies, or both, doing work on the project as to their mutual rights or obligations, the Contracting Authority or its authorized representative will, when requested to do so or upon his own motion, act as referee and define the rights of all interested parties with regard to the conduct of the work, which decision shall be final as provided in 1105.01.

M. If a prospective bidder, for a project for which the Department is the Contracting Authority, is in doubt as to the true meaning of any part of the contract documents, he may submit to the Contracting Authority a request for additional information, explanations, or interpretations. Interpretations may be in the form of an addendum to the proposal. The Contracting Authority will not be responsible for any information, explanation, or interpretation from any other source.

1101.06 IRREGULAR PROPOSALS

A. Proposals will be considered irregular, and may be rejected, for any unauthorized changes in the proposal form or for any of the following reasons:
   1. If on a form other than that furnished by the Contracting Authority, or if the form is altered or any part thereof is detached.
   2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
   3. If the bidder adds any provisions reserving the right to accept or reject an award because he is low bidder on another project in the same letting,
   4. If the bidder adds any provisions reserving the right to accept or reject an award or to enter into contract pursuant to an award.
   5. If a bid on one project is tied to a bid on any other project, except as specifically authorized on the proposal form by the Contracting Authority,
   6. If the proposal does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.

1101.07 ESTIMATE OF QUANTITIES

A. For all work let on a unit price basis, the Engineer's estimate of quantities, as shown in the notice to bidders and the proposals is understood to be approximate only, and will be used only for comparing bids except as otherwise provided in the basis of payment for the various classes of work.

1101.08 SUBMISSION OF PROPOSALS

A. All proposals shall be submitted on the standard proposal form prepared specifically for this project. An example of which is bound in this specification volume. Only proposals which are submitted on this form will be considered.
B. One copy of the proposal shall be submitted.
C. No proposal for any subdivision or any subclassification of the work, except as indicated, will be accepted. Any conditional bid, amendment to the proposal form, or the inclusion of any correspondence, written or printed matter, or details of any essential provision of the contract documents, or required consideration of unsolicited material or data in determining the award of the contracts will disqualify the proposal.
D. The bid amounts shall be inserted in the spaces provided on the proposal form, setting forth clearly and concisely, all designations and prices. Erasures or other changes on the proposal form must be explained or noted over the signature of the bidder.
E. Addenda issued during the time of bidding shall become part of the contract documents. Bidders shall acknowledge receipt of each addendum in the appropriate space provided on the proposal form. If no addenda are issued, the word "none" is to be entered in the space provided.
F. When samples are required, they must be submitted by the bidder so as to arrive at the designated office prior to the hour set for opening the proposals. Samples shall be furnished free of expense to the Department of Natural Resources, properly marked by identifications and accompanied by a list when there is more than one sample. The Department of Natural Resources reserves the right to mutilate or destroy any samples submitted whenever it may be considered necessary to do so for the purpose of testing. Samples not so mutilated or destroyed, when no longer required to be retained in connection with the award or delivery of supplies, will be returned at the bidder's expense, if such return is requested in the proposal.
G. All proposals must state the full business address of the bidder and be signed with the bidder's usual signature. Proposals by partnerships must state the full names of all partners and must state the name of the partnership followed by the signature and designation of one of the members of the partnership or an authorized representative. Proposals by corporations must state the legal name of the corporation and the name of the

state of incorporation followed by the signature and designation of the president, secretary, or other person authorized to bind the corporation to the proposal. Contractors are required to include the Iowa Contractors registration number assigned to them by the Iowa Division of Labor Services. The name of each person signing the proposal shall be typed or printed below the signature.

H. A proposal by a person who affixes to their signature the word “president”, “secretary”, “agent”, or any other designation without disclosing their principals may be held to be the proposal of the individual whose name is signed thereon. When requested by the Department of Natural Resources, satisfactory evidence of the authority of the officers signing in behalf of the corporation shall be furnished.

I. Proposals shall be submitted via email to the address specified in the Notice to Bidders. The subject line of the email containing the proposal and proposal guarantee must state the following: Project Number, Project Title, and the Bid Date. The bidder shall be responsible for emailing the proposal, with the proposal guarantee, on or before the date and time specified in the Notice to Bidders. The officer whose duty it is to open the proposal will decide when the specified time has arrived. Proposals received thereafter will not be considered. The Department shall notify the bidder in the event that a bid is determined to be late.

J. No bidder shall submit more than one proposal for identical work for the same project.

1101.09 WITHDRAWAL OF PROPOSALS

A. Proposals may be withdrawn by written or telegraphic request received from the bidder or authorized representative prior to the time fixed for opening of bids, without prejudice to the right of the bidder to file a new proposal. No proposals may be withdrawn by telephone request. Withdrawn proposals will be returned unopened. Negligence on the part of the bidder in preparing the proposal confers no right for withdrawal of the proposal after it has been opened.

1101.10 TAXES

A. The bidder shall include in the proposal all applicable federal and state taxes required by law. See Sales Tax Exemption below.

B. For the purposes of retail sales tax and use tax, general construction contractors, special construction contractors, and construction subcontractors are regarded as consumers or users of all tangible personal property which they purchaser acquire, or manufacture for use in complying their respective construction contracts.

C. Iowa retailers making sales, within the state of Iowa, of tangible personal property to a construction contractor for such use, are making sales at retail, the receipts of which are subject to retail sales tax. This means that a construction contractor should pay retail sales tax to his Iowa suppliers when purchases of tangible property are made within the state of Iowa. If a Contractor uses tangible personal property in completing the constructions which the Contractor has manufactured or fabricated, the tax will be 5% of the cost of manufacture.

D. This likewise means that any construction contractor purchasing, acquiring, or manufacturing tangible personal property outside the state of Iowa, for such use in Iowa, owes use tax on such out-of-state purchases, measured at the rate of 5% of the purchase prices or in the case of a product manufactured by the Contractor, the Contractor owes 5% of the cost of manufacture.

E. The use tax is to be paid by the Contractor directly to the Iowa Department of Revenue and Finance, using the retailer’s sales and use tax return, unless the out-of-state vendor from whom purchased is registered with the Use Tax Section of the Iowa Department of Revenue and does bill and collect the Iowa Use Tax for the state.

F. In accordance with Iowa Code Section423 , the DEPARTMENT will issue a Sales Tax Exemption Certificate to the CONTRACTOR, and each approved subcontractor, which will permit the material suppliers to sell material which will becomes an integral part of the structure exempt from Iowa sales tax and some applicable local option taxes and school infrastructure local option sales taxes.

G. The CONTRACTOR is responsible for keeping records identifying the materials and supplies purchased and verifying they were used as an integral part of the structure governed by this Contract. Any material purchased tax free and not used on this project are subject to taxes payable within the same quarter as the project completion date.

H. The Sales Tax Exemption Certificate must not be used to claim exemption for tax items not used on this project or that does not qualify for exemption under the provisions of the Iowa Code Sections listed above. Such misuse will result in civil or criminal penalties.

I. Bidders should anticipate that the sale and use tax could increase the cost of non-exempted services and material by at least 5% and make the necessary allowance before submitting a bid.
J. The Department will reclaim sales taxes, after receiving a Contractor's Statement of Sales Tax for those projects for which a Tax Exemption Certificate was not issued.

1101.11 WORK BY THE DEPARTMENT OF NATURAL RESOURCES

A. Unless specifically provided in the contracts the Department of Natural Resources will not furnish any labor, materials, or supplies necessary to complete the work under this contract.

1101.12 PREFERENCE FOR LABOR AND MATERIALS

A. The Contractor shall observe all of the laws of the state of Iowa with regard to preference for labor and materials, except that preference for Iowa labor and materials shall not apply when federal funding is to pay for any part of the project. When a project is federally funded it is indicated in the notice to bidders.

1101.13 PROPOSAL GUARANTEE

A. All proposals submitted by bidders must be accompanied by a proposal guarantee in the form of a certified check, cashier's check, or a proposal guarantee bond prepared on the standard proposal guarantee bond form furnished to the bidder by the Department of Natural Resources, an example of which is bound in this specification volume.
    1. The proposal guarantee shall be made payable to the Department of Natural Resources in the amount specified in the Notice to Bidders and on the proposal form.
    2. If the bond form is utilized in lieu of certified check or cashier's checks it must be executed by a surety company authorized by the Commissioner of Insurance for the state of Iowa to do business in Iowa and which has filed its certificate of authority with the Clerk of Court. One copy of the proposal guarantee bond form is furnished by the Department of Natural Resources with the contract documents. Only one executed copy must be submitted with the bid proposal.
B. Any bid which is not accompanied by a proposal guarantee will be considered no bid and will not be read at the bid opening.
C. All proposal guarantees submitted by unsuccessful bidders will be returned as stated in Section 1103.03 of the General Covenants and Provisions.

1101.14 AWARD OF THE CONTRACT

A. It is the intent of the Owner to award a contract to the lowest responsible Bidder provided the Bid has been submitted in accord with the requirements of the Bidding Documents, is judged reasonable, and does not exceed the funds available. Award of this contract will be at the place and at the time of the regularly scheduled meeting of the appropriate commission of the Department of Natural Resources following the opening of the proposals, except for reasonable delays as provided in Section 1103.02 of the General Covenants and Provisions.
B. The Department of Natural Resources reserves the right to reject all bids or any proposal or to waive informalities in any proposal or to accept any proposal which will best serve the interests of the state of Iowa.
C. If, at the time this contract is to be awarded, the lowest proposal submitted by a qualified responsible bidder is in the best interest of the state of Iowa, the contract will be awarded, and the bidder to whom the award is made will be promptly notified after the Department of Natural Resources meeting.
D. The Owner shall have the right to accept Alternates in any order or combination and to determine the low bidder on the sum of the Base Bid and the Alternates accepted.

1101.15 EXECUTION OF THE CONTRACT

A. The successful bidder shall, within thirty calendar days after the date of the award of the contract, enter into a written contract with the Department of Natural Resources on the forms furnished by the Department for the performance of the awarded work.

1101.16 PERFORMANCE GUARANTEE BOND

A. Simultaneously with delivery of the signed contract, the Contractor shall furnish a performance guarantee bond prepared on the standard performance guarantee bond form furnished to the Contractor by the Department of Natural Resources, an example of which is bound in the specification volume.

1. The bond must be executed by a surety company authorized by the Commissioner of Insurance of the State of Iowa to do business in Iowa and which has filed its Certificate of Authority with the Clerk of Court.
2. A copy of the performance guarantee bond form will be attached to a copy of the contract furnished by the Department to the Contractor after award of the contract. One executed copy of the bond must be returned to the Department with the signed contract, one copy of the bond may be retained by the surety company for its own records.

1101.17 CERTIFICATE OF INSURANCE

A. On or before execution of the contracts the Contractor shall furnish to the Department a certificate of liability and property damage insurance.
   1. The bidder is directed to examine the insurance coverage limits section of this specification volume to determine the coverage limits which apply to this project. Insurance certificates furnished to the Department of Natural Resources showing inadequate limits of coverage will be rejected, thus delaying final execution of the contract. See Sections 1103.04, 1107.02, and 1107.03 of the General Covenants and Provisions.

1101.18 COMMENCEMENT AND COMPLETION

A. The Contractor shall not commence work before the preconstruction meeting to be held after execution of the contract by all parties. The Contractor will be responsible for contacting the project Inspector to set up a time for the preconstruction meeting at the project site.
B. The Contractor must agree to complete the work by the date specified, or within the number of working days indicated if so specified in the contract. Should it be found impossible to complete the work on or before the time specified for completion, a written request may be submitted for a time extension, setting forth the reasons believed to justify the granting of such requests.

1101.19 APPEAL OF CONTRACT AWARD

A. If a Contractor who submitted a timely proposal disagrees with an award decision, it may appeal that decision by submitting a written appeal to department's director or the director's designee detailing the factual and legal basis for the challenge within five calendar days of the Notice of Intent to Award. The Issuing Officer may submit a written response to the Contractor's written appeal within five business days after receipt of the appeal. The department's director or designee will issue a written decision within seven business days of receipt of the Issuing Officer's written response.

PART 1102. BIDDER QUALIFICATIONS

1102.01 COMPETENCY AND OF BIDDERS

A. Bidders submitting proposals must be recognized contractors, engaged in the class of work provided for in the plans and specifications, and must possess sufficient resources to complete the work. Before the contract is awarded, the bidder may be required to furnish evidence to the satisfaction of the Contracting Authority of the ability to perform and complete the contract.

1102.02 QUALIFICATIONS OF THE BIDDER

A. Before award of the contract can be approved, the Department shall be satisfied that the bidder involved:
   1. Maintains a permanent place of business.
   2. Has adequate equipment to do the work properly and expeditiously.
   3. Has suitable financial status to meet the obligations incident to the work.
   4. Has appropriate technical experience.
   5. Has satisfactorily completed past projects.
   6. Is not ineligible due to discrimination in employment.

B. The Engineer will make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Engineer all such information and data for this purpose as the Engineer may request.
   1. The Department of Natural Resources reserves the right to reject a bid if the evidence submitted by, or an investigation of, such bidder fails to satisfy the Department of Natural Resources that the bidder is responsible and qualified to carry out the obligations of the contract and to complete the work contemplated therein.

C. Targeted Small Business set-aside projects.
   1. All contractors submitting proposals for set-aside projects shall meet the "Targeted Small Business" definitions and be capable of being certified by the Iowa Economic Development Authority within thirty (30) days after the bid letting date. Failure of the low bidder to become certified within this time will be just and sufficient cause for the denial of the award.
   2. Contractors eligible for "Targeted Small Business" designation, but not currently certified as such by the Department of Inspections and Appeals, should do so immediately by contacting the Targeted Small Business Officer, Lucas State Office Building, Des Moines, Iowa 50319 -0083.

1102.03 REDUCTIONS IN BIDDER QUALIFICATIONS RESTRICTIONS

A. The requirements and conditions for bidder qualifications may be reduced by the Contracting Authority either for contractors who have well established performance records in other fields or for contractors having adequate financial responsibility and experienced supervisory personnel available for the work that is under consideration or for both the above reasons.

B. Likewise, the requirements may be modified by the Contracting Authority for newly formed or reorganized firms or corporations whose basic organization is composed of individuals who are veterans of the construction industry, with proven records of satisfactory performance in the field in which they have elected to bid, provided, however, that they have adequate financial responsibility, equipment, and available experienced supervisory personnel.

1102.04 IMPOSITION OF INCREASE IN BIDDER QUALIFICATION REQUIREMENTS, SUSPENSIONS AND DISQUALIFICATION

A. The requirements and conditions for bidder qualification in 1102.01 may be imposed or re-imposed or increased, or a contractor may be suspended or disqualified.

B. The requirements and conditions for qualifications of a contractor may be imposed or re-imposed or increased if or when:
   1. The Contractor seriously delays commencement or completion of any work within the contract period or any extension thereof under circumstances that would normally give rise to a right of the Contracting Authority for liquidated damages or declaration of defaults or;
   2. The Contractor does any act or omits doing or performing any act which, in the judgment of the Contracting Authority, evidences a material change in the contractor's financial responsibility or work capability where, in the judgment of the Contracting Authority, the same will materially prejudice the contractor's ability to successfully prosecute such public improvement contracts, or he knowingly submits false information concerning prequalification, or;
   3. The Contractor takes or fails to take any action which the Contracting Authority deems to warrant an imposition of increase in bidder qualification requirements.

C. A contractor may be suspended from bidder qualification if or when:
   1. The Contractor continually fails or refuses to remove and replace materials or work found by the Engineer not to be in reasonably close conformity with the contract documents or to correct such material or work so as to cause such materials or finished product to be reasonably acceptable work, or;
   2. The Contractor continually and, in the judgment of the Engineer, without good cause therefor, fails to carry on the work in an acceptable manner, or refuses to comply with a written order of the Engineer within a reasonable time, or;
   3. The Contractor fails to perform with his own organization the work as required in 1108.01, or otherwise assigns or disposes of work or the contract or any part thereof without approval of the Contracting Authority, or;

4. The Contractor forfeits a proposal guaranty and fails to enter into the contract upon an offer of award by the guarantee Contracting Authority in response to a prior advertisement for bids for the same project for which award is currently being considered, or;
5. The Contractor fails to comply with nondiscrimination requirements of the Standard Specifications or Special Provisions, or;
6. The Contracting Authority deems a suspension is appropriate for reasons stated in Paragraph A, above.
7. The Contractor is debarred from doing work for the federal government.
8. The Contractor knowingly submitted false or misleading information concerning qualifications.

D. A suspension is intended to be for an indefinite period of time or, in the case of Paragraph C4, for a specific project. A suspension shall continue until the contractor resolves, to the satisfaction of the Contracting Authority the problem for which the suspension was made.

E. A contractor may be disqualified from bidder qualification if or when:
1. Currently debarred by some other state or Federal agency, or;
2. Subcontracts, employs, or otherwise uses services, for work of the Contracting Authority, of one who is debarred by the Contracting Authority or disqualified according to Paragraph 1, except to fulfill agreements for work on existing contracts, or;
3. Is convicted of or pleads guilty or nolo contendere to a charge of engaging in any conspiracy, combination, or other unlawful act in restraint of trade or of similar charges in any Federal court or a court of this or any other state, or;
4. Has offered or given gifts or gratuities to employees of the Contracting Authority in violation of State law or has had his employee a person who was at that time also an employee of the Contracting Authority, or;
5. The Contracting Authority deems a disqualification is appropriate for reasons stated in Paragraph C above.

F. A disqualification is intended to be for a specified time. A disqualification shall not exceed 36 months. The Contracting Authority will issue a written notice of any intent to disqualify or suspend a contractor, except when suspended for a specific project according to Paragraph C4.

G. Should the Contractor believe that the increase in bidder qualification requirements, intended suspensions or intended disqualification is based on false, biased, or incomplete information or that the increase or intended action is severe or unwarranted, the Contractor may make a written request to the Contracting Authority for an opportunity to be heard in a contested case pursuant to Chapter 17A, Code of Iowa.
1. If notice is given, the written request for a hearing must be filed with the Contracting Authority within 10 days of receipt of the notice of intended agency action.
2. If the basis of the intended disqualification is a criminal violation which is reasonably related to bidding and contracting procedures, the intended disqualification may be applied to the organization, including a person, firm, association, partnership, or corporation, to an affiliated officer, representative, or employee thereof, and to any other such organization in which the organization or affiliate or the officer, representative, or employee has an interest as either officer or owner.

H. When a notice is given or when any action is contested, the Contracting Authority will issue a notice of the final action taken.

1102.05 FOREIGN CORPORATIONS

A. Before entering into a contract involving construction or maintenance work, corporations organized under the laws of any other state shall file with the Contracting Authority a certificate from the Secretary of State of the State of Iowa showing that they have complied with all of the provisions of Chapter 489 Code of Iowa, governing foreign corporations. For contracts involving only the furnishing of materials, the foregoing requirement does not apply.

B. When a contract not involving federal-aid participation for a public improvement is to be awarded to the lowest responsible bidder, a resident bidder shall be allowed a preference over a nonresident bidder from a state or foreign country which gives or requires a preference to bidders from that state or foreign county. The preference is equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident.

C. If another state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable to bidders from that state or foreign county.

D. Any joint venture that includes a nonresident bidder will be considered nonresident, and the preference rule will be used.

1102.06 INCOME TAX DEDUCTION ON NON-RESIDENT CONTRACTORS

A. Each nonresident person or firm doing business as an individual and each nonresident co-partnership will be required, as precedent to receiving an award, to file a certificate issued by the State Tax Commissions as provided in Section 422.17, Code of Iowa, releasing the Contracting Authority from withholding any and all sums required by the provisions of Section 422.17, Code of Iowa.

PART 1103. APPROVAL FOR AWARD AND AWARD OF THE CONTRACT

1103.01 CONSIDERATION OF BIDS

A. The Contracting Authority reserves the right to waive technicalities and to reject any or all proposals. Bidders may be denied a contract award for any one of the following reasons:
   1. For failure to meet the Contracting Authority's requirements for qualification of bidders, as set forth in Section 1102.02 and in the special provisions for the project.
   2. For failure to maintain satisfactory progress on work already under contract.
   3. For failure to meet promptly financial obligations undertaken in connection with other work under contract.
   4. For filing more than one proposal at any letting for the same work under the same or different names.
   5. For an unsatisfactory record of performance and cooperation on previous contracts.
   6. For submitting an obviously unbalanced bid.
   7. For having sublet or otherwise assigned work without the approval of the Contracting Authority.
   8. For forfeiture of a proposal guarantee and failure to enter into contract upon an offer of an award by the Contracting Authority in response to a prior advertisement for bids for the same project or any combination of projects involving the project for which award is currently being considered.
   9. For failure to file and maintain with the Contracting Authority a current Certificate of Insurance meeting the requirements of 1107.02.
   10. For failure to provide a current Iowa contractor's registration number according to the provisions of Chapter 91C of the Code of Iowa.

1103.02 APPROVAL FOR AWARD

A. In the approval for award of contracts consideration will be given not only to prices bid but also to the mechanical and other equipment available to the bidders the financial responsibility of the bidders and his ability and experience in performance of like or similar contracts.

B. Approvals for award will be made as promptly as practical after bids have been opened and read. The Contracting Authority reserves the right to delay the approval for award for such time as is needed for consideration of bids and for receipt of concurrence in recommended approvals for award from other governmental agencies whose concurrence may be required.

1103.03 RETURN OF PROPOSAL GUARANTEE

A. Original submissions of proposal guaranties will be returned to the unsuccessful bidders by mail promptly after the approval for award has been made. Return to the successful bidder will be made promptly after the filing of the contract documents.

1103.04 CERTIFICATE OF INSURANCE

A. The Contractor's certificate of liability and property damage insurance described in 1107.02 shall be filed with the Contracting Authority on or before the execution of the contract and shall be maintained throughout the prosecution of the work and until final acceptance and completion of the contract. A separate verification shall be required for contracts awarded on the basis of joint bids.

1103.05 REQUIREMENT OF CONTRACT BOND

A. In compliance with Section 573 of the Code of Iowa, the Contractor shall, at the request of the Contracting Authority, on all contracts amounting to twenty-five thousand ($25,000.00) dollars or more, file an acceptable bond in an amount not less than 100 percent of the contract sum with the Contracting Authority.

1. The bond shall be executed on the standard form provided bythe Contracting Authority.. This bond shall be held to cover all work included in the contracts whether performed by the Contractor or under a subcontract or assignment. The bond shall be executed by the Contractor and by a surety company authorized to do business in the state of Iowa.
2. The Contractor shall not begin work on any contract before he is notified, in writing, that the required bond has been approved and accepted, or until the signed contract is returned to him.

B. Prime contractors that are certified through Iowa Iowa Economic Development Authority as a Targeted Small Business may request a performance bond waiver.
   1. The waiver shall be applied only to a prime contract where the project does not exceed $50,000.00, not withstanding Section 573.2 of the Iowa Code.
   2. The waiver shall only apply to those contractors which are able to demonstrate the inability of securing a bond because of a lack of experience.
   3. A waiver shall not apply to business with a record of repeated failure of substantial performance or material breach of contract in prior circumstances. The granting of a waiver shall in no way relieve the business from its contractual obligations and shall not preclude the Contracting Authority from pursuing any remedies under the law upon default or breach of contract.

1103.06 EXECUTION OF CONTRACT

A. The bidder to whom a contract is being awarded shall execute and file such contract with the Contracting Authority.

1103.07 FAILURE TO EXECUTE CONTRACT

A. Unless the time limit is modified by Special Provisions, failure to execute a contract and file an acceptable bond within 30 days of the date of the approval for awardherein provided, will be just and sufficient cause for annulment of the approval for award and for forfeiture of the proposal guarantee to the Contracting Authority.

1103.08 SUBCONTRACTORS

A. The bidder to whom a contract is being awarded shall file a list of subcontractors ith the Contracting Authority within 30 days of the date of the approval for award. All subcontracts must comply with the provisions of 1106.01.

1103.09 MATERIAL SUBSTITUTION

A. The bidder to whom a contract is being awarded shall file all requests for materials substitutions within 30 days of the approval of award of the contract.

PART 1104. SCOPE OF WORK

1104.1 INTENT OF PLANS AND SPECIFICATIONS

A. The intent of the plans and specifications is to provide for the construction and completion of every detail of the work described therein. It shall be understood that the Contractor shall furnish all labor, material, tools, transportation, and supplies required for all or any part of the work to make each item complete in accordance with the spirit of the contract. It is understood that the apparent silence of the specifications as to any detail or the apparent omission of a detailed description concerning any point shall be regarded as meaning that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be used.

A. For the purpose of design and the preparation of the Engineer’s estimate, the Contracting Authority or its representatives may perform a reasonable amount of exploratory work to gain information relative to surface and subsurface conditions relating to types of soils moisture content, and types and extent of rock strata.
   1. This information, when shown on the plans, represents a summary of conditions as of the date the survey was made, it is only an approximate estimation of the site conditions made merely to be suggestive to the Contracting Authority of construction conditions and quantities and classes of work. This information may be used as the bidder sees fit. The appearance of this information on the plans or specifications will not constitute a guarantee that conditions other than those indicated will not be encountered at the time of construction.

2. The bidder is advised that all information concerning the project, compiled by the Contracting Authority preceding the design, is available for examination at the Contracting Authority's headquarters. The prospective bidder shall conduct an examination as provided in 1102.06 to satisfy himself as to the character of the work to be done, the probable construction conditions, and any other reasonably ascertainable conditions and the potential effect these could have on the performance of work under the contracts which shall be the basis for the bid to be prepared.

B. Any bidder interested in the work is authorized to make whatever additional investigation he considers advisable. In making such additional investigation, the bidder is directed to the Engineer for information relating to available right-of-way. If there are, at that time, any parcels of land over which the Contracting Authority does not have jurisdiction, right-of-entry must be secured by the prospective bidder from those authorized to grant such permission.
   1. All such additional investigation work shall be performed without costing or obligating the Contracting Authority in any way.

1104.02 SPECIAL WORK

A. Any conditions not covered by these Standard Specifications are stated in the Special Provisions.

1104.03 INCREASED OR DECREASED QUANTITIES

A. The Contracting Authority reserves the right to make such increase or decrease in the quantities of the work shown on the plans as may be considered necessary to complete fully and satisfactorily the construction included in the contract. The compensation to the Contractor for such changes will be as provided in 1109.04.

B. Except as provided in 1109.05, no significant change in quantities, as defined in 1109.17, shall be made by increasing or decreasing the project area to be improved as shown on the plans and described in the proposal forms unless the Contractor gives written consent to such increase or decrease. However, such consent will not be required for maintenance or restoration work ordered by the Engineer.
   1. For the purpose of this article a material change shall be defined as an increase or decrease of more than 20 percent in the measured quantity of any item in the contract.

1104.04 EXTRA WORK

A. The Contracting Authority reserves the right to order, in writing, the performance of work of a class not contemplated in the proposal but which may be considered necessary to complete satisfactorily the work included in the contract. Such extra work will be paid for as provided in 1109.04B.

1104.05 MAINTENANCE OF DETOURS

A. Unless so required by the plans or the special provisions, the Contractor will not be required to assume any responsibility in connection with the maintenance or marking of suitable detours.

1104.06 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS

A. The contractor for bridge and culvert work shall remove any existing structure, or part of structure, that in any way interferes with the new construction. If specific payment for such work has not been provided in the contract, it will be paid for as extra work.

B. The contractor for road work shall remove any materials or structures found on the right-of-way which are not designated to remain in place or which have not been designated for use in the new construction.
   1. The removal and disposal of pipe culverts will not be paid for directly but shall be considered as incidental works and the cost of such removal and disposal shall be considered to be included in the contract price for other items. Pipe culverts designated for salvage shall be removed by methods that will cause a minimum of damage to the pipe culverts.
   2. The removal and disposal of bridges or other masonry or monolithic concrete construction will be paid for. If the contract does not contain an item for such work, it will be paid for as extra work.

1104.07 RIGHTS IN AND USE OF MATERIALS FOUND ON THE RIGHT-OF-WAY

A. Unless stated to the contrary in the contract documents, all materials, such as stone, gravel, sand, timber, and structures or parts of structures, found on the right-of-way or on land acquired for the work, are the property of the Contracting Authority or the owner of the fee title to the land.
   1. If such materials are to be removed but use or salvage is not designated on the plans, they shall become the property of the Contractor, and shall be disposed of by the Contractor.
   2. When the Contractor is permitted to use materials found on the right-of-way, any excavations that are made below the grade elevations shall be backfilled with other suitable materials so that the finished road conforms to the grade shown on the plans. No extra compensation will be allowed for such backfilling.

1104.08 FINAL CLEANING UP

A. Before final acceptance of the work, the Contractor shall remove all unused material and rubbish from the site of the work, remedy any objectionable conditions the Contractor may have created on private property, and leave the project site in a neat and presentable condition. The Contractor shall make no agreement which allows salvaged or unused material to remain on private property within view of the project except when consistent with previous land use.
B. All ground occupied by the Contractor in connection with the work, which is within view of or adjacent to a road, shall be restored. Restoration shall include appropriate smoothing to its original condition and may include making the area suitable for cultivation and, where vegetation has been disturbed, seeding of the area.
   1. Unless otherwise provided for, the Contractor shall be responsible for securing waste privileges on private property. The general Contractor shall be responsible for cleanup of subcontractors at the completion of all work.
C. This article is not intended to restrict burning in accord with applicable regulations.
D. Final clean up shall be subject to approval of the Engineer.

1104.09 RIGHT-OF-WAYS OR LANDS ACQUIRED FOR THE WORK

A. Access to the construction site will be over designated routes of travel, on land owned or made available by the Contracting Authority for the specific use of the Contractor.
B. Right-of-way or lands will be provided without cost to the Contractor, and it is contemplated that all of the needed right-of-way or lands will have been acquired for the work placed under contract.
   1. Whenever it is necessary to secure additional right-of-way or land, performance of the work affected thereby is contingent upon the securing of such right-of-way or land. No claims will be allowed for loss or damage occasioned by delays in securing right-of-way or lands.

1104.10 PERMITS AND ARRANGEMENTS WITH OTHER GOVERNMENTAL AGENCIES

A. Whenever the work involves construction with which federal, state, or local governmental agencies are concerned, the performance of the work is contingent on arrangements and/or permits with those concerned agencies.
   1. The Contracting Authorityshall secure all necessary permits, certificates, and licenses required to prosecute the work, except specifically designated permits, local building permits, and any cost for inspections required by local authorities, which shall be paid for and secured by the Contractor.
   2. No additional compensation will be allowed for any delays, inconvenience, or damages sustained by the Contractor due to actions of those concerned agencies with respect to any arrangements or permits they may require.

1104.11 RAILROAD CROSSINGS

A. Whenever the work involves construction with which railroad companies are concerned, the performance of the work is contingent upon arrangements with the railroad companies for the proposed construction.
   1. The performance of the work shall be in accord with arrangements established by the Contracting Authority. The Contractor may make additional arrangements.
   2. No claim will be allowed for loss or damage caused by failure of the railroad to comply with provisions of the agreement with the Contracting Authority. Upon notice given, the Contracting Authority will institute necessary legal action to enforce the conditions of its agreement with the railroad company.

1104.12 PUBLIC UTILITIES

A. The Contracting Authority will notify all utility companies, all pipeline owners, or other parties affected, and will endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practicable.
B. The Contractor shall be responsible for notification concerning work near pipelines, required by Section 479.47, Code of Iowa, and for conducting his work as required therein.
C. Waterlines, gaslines, wirelines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, except as otherwise provided for in the special provisions or as noted on the plans.
D. It is understood and agreed that the Contractor has considered in the bid all of the permanent and temporary utility appurtenances in their present or relocated positions as shown on the plans and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him/her due to any interference from the utility appurtenances or their operation or relocation.

1104.13 DRAWINGS AND SPECIFICATIONS

A. Unless otherwise provided in the contract documents the Contracting Authority shall furnish to the Contractor, awarded the contract, free of charge, all copies of drawings and specifications reasonably necessary for the execution of the work.

1104.14 THE CONTRACTING AUTHORITY'S RIGHT TO OCCUPY

A. The Contracting Authority shall have the right to enter the building or work site and store or attach such fixtures or furniture as it may elect, or to do such other work providing that such storage or work will not interfere with the completion of the Contractor's work. Such occupancy by the Contracting Authority shall in no way imply final acceptance of any portion of the Contractor's work.

1104.15 CONTRACTOR'S UNDERSTANDING

A. It is understood and agreed that the Contractor has, by careful examination, satisfied him/herself as to the nature, character and location of the work, conformation of the ground, character, quality and quantity of the materials to be encountered, character of the equipment and facilities needed, preliminary to and during the prosecution of the work, general and local conditions and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agency, or employee of the Contracting Authority, either before or after the execution of the contracts shall affect or modify any of the terms or obligations herein contained.

1104.16 HISTORICAL AND ARCHEOLOGICAL

A. If during the course of construction evidence of deposits of historical or archeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Iowa Department of Natural Resources and the state Historic Preservation Officer. No further disturbance of the deposits shall occur until the contractor has been notified by the agency that he/she may proceed. The agency will issue a notice to proceed only after the state official has surveyed the find and made a determination to the Iowa Department of Natural Resources.
B. Compensation to the contractor, if any, for lost time or changes in construction to avoid the finds shall be determined in accordance with changed conditions or change order provisions of the specifications.

PART 1105. CONTROL OF WORK

1105.01 AUTHORITY OF ENGINEER

A. The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work, all disputed and mutual rights between contractors, all plans and specifications, and all questions as to the acceptable fulfillment of the contract on the part of the Contractor. Except as provided in Section 1109, the Engineer's decisions will be final.
B. For authority to temporarily suspend work see 1105.08 and 1108.06.

1105.02 PLANS

A. The official plans, profiles, and cross sections, on file in the office of the Contracting Authority, show the location, typical construction details, and dimensions of the work contemplated. The work shall be performed in conformity therewith, except in case of errors or unforeseen contingencies.

B. The plans are made from careful surveys and represent the foreseen construction requirements. Any appreciable deviation from the plans made necessary to expedite construction, or because of errors shall be called to the attention of the other party, in writing, by the party discovering such conditions. If necessary, revised plans will be provided.

1105.03 WORKING DRAWINGS

A. The plans will be supplemented by such working drawings as are necessary to adequately control the work. Working drawings shall be furnished by the Contractor, as required by the specifications or the plans.
   1. When certification by a professional structural or civil engineer registered in Iowa is required, it will be so designated on the plans or in other contract documents.
   2. Working drawings may include shop drawings of fabricated materials, erection plans, falsework plans, cofferdam plans, or other supplemental plans or data. Contractor submitted shop drawings for steel structures shall show fully detailed dimensions and sizes of all component parts of the structure, descriptions of drains, etc.
   3. Prior to review of working drawings, any work done or material ordered shall be at the Contractor's risk.
   4. The Contractor shall expressly understand that the Contracting Authority's review of working drawings submitted by the Contractor covers only requirements for strength and arrangement of component parts.
   5. The Contracting Authority assumes no responsibility for errors in dimensions and assumes the Contractor will use material complying with requirements of the contract documents, or, where not specified, those of sound and reasonable quality, and will erect the subjects of such working drawings in accord with recognized standards of first-quality workmanship or, when specified, in accordance with standards of the contract documents.
   6. If unanticipated and either unusual or complex construction procedures or site conditions occur, the Engineer may require the Contractor to submit such working drawings as, in the judgment of the Engineer, are necessary to satisfactorily complete the proposed construction.

1105.04 ALTERATION OF PLANS OR CHARACTER OF WORK

A. The Engineer will have the right to make alterations in plans or character of work as may be considered necessary or desirable during the progress of the work to satisfactorily complete the proposed construction. Such alteration will neither waive any conditions of the contract nor invalidate any of the provisions thereof.

1105.05 CONFORMITY WITH AND COORDINATION OF SPECIFICATIONS, PLANS AND SPECIAL PROVISIONS

A. Discrepancies within contract documents:
   1. In case of any discrepancy between the drawings on the plans and the figures written thereon, the figures, unless obviously incorrect, are to govern.
   2. In case of any discrepancy between the plans, including plan notes, and the general or supplemental specifications, the plans are to govern.
   3. In case of a discrepancy between the general specifications and supplemental specifications, the supplemental specifications are to govern.
   4. In case of any discrepancy between the general or supplemental specifications and the special provisions or between the plans and the special provisions, the special provisions shall govern.

B. The Contractor shall not take advantage of any apparent error or omission in the plans, specifications, or of any discrepancy between the plans or specifications. The Engineer shall be permitted to make such correction in interpretation as may be deemed necessary for the fulfillment of the intent of the plans and specifications, subject to compensation as provided in 1109.03, 1109.05, and 1109.06.

C. The plans shall not be so changed as to materially affect the cost or the difficulty of performing any item or work for which the contract amount is more than 20 percent of the total contract sum, except with the consent of the Contractor.

D. All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans or indicated in the specifications.
E. If the Engineer finds the material, or the finished product in which the material, is used is not within reasonably close conformity with the plans and specifications, but that reasonably acceptable work has been produced, the Engineer shall determine, based on engineering judgment, if the work shall be accepted and remain in place.
    1. In this event the Engineer will document the basis of acceptance and supplement it by contract modification which will provide for an appropriate adjustment in the contract price for such work or materials as deemed necessary to conform to the Engineer's determination.
F. If the Engineer finds the material, the finished product in which the material is used, or the work performed is not in reasonably close conformity with the plans and specifications and has resulted in an inferior or unsatisfactory product, the work or material shall be considered unacceptable and shall be removed and replaced, or otherwise corrected, as acceptable to the Engineer, by and at the expense of the Contractor.

1105.06 SUPERVISION BY CONTRACTOR

A. The Contractor, when absent from the construction site, shall have on-site, at all times, a competent superintendent as its agent, capable of reading and thoroughly understanding the plans, specifications, and other contract documents and who shall be thoroughly experienced in the type of work being performed.
    1. The superintendent shall supervise, direct, and control the Contractor's operations, personnel, work, and subcontractor's operations. The superintendent shall have full authority to execute orders or directions of the Engineer, without delays, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required.
    2. The Contractor shall give the Engineer written notification of the name of the superintendent. The superintendent shall not be replaced, except with the consent of the Engineer, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in the Contractors employ.

1105.07 CONSTRUCTION STAKES AND BENCH MARKS

A. If there is no provision in the Contract documents for a Construction Survey Bid Item, the Engineer will set the necessary centerline, slopes and grade stakes promptly upon notification by the Contractor that stakes are needed, unless otherwise noted on the Plans.
B. For all structures, unless otherwise noted on the Plans, the Engineer will set stakes for centerline and such other stakes as are necessary to establish definitely, the location, elevations, and alignment of the structure. Every reasonable precaution will be taken by the Engineer and his technical assistants to ensure that the construction stakes and/or computations are true and accurate, but the Contractor shall ensure that no gross error exists before beginning operations. Should such mistakes or errors be allowed to exist, and work completed on erroneous data, the Contractor will be held responsible to remedy the work to conform to the correct lines, grades, or standards without expense to the Contracting Authority or the Engineer.
C. The Contracting Authority shall not be responsible for delays due to lack of grade or line stakes, unless the Contractor has given the Engineer 48-hour written notice that such stakes will be needed, and the Contractor's work is being conducted in a satisfactory manner and at the specified rate of progress.
D. The Contractor shall be held responsible for the preservation of stakes and marks. If, in the opinion of the Engineer, any of the survey stakes or marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost of replacing them shall be charged against the Contractor.
E. The Contractor shall provide and keep constantly upon the work site, first-class instruments for use in establishing the various lines, levels and grades for the construction and shall have a superintendent on the work who is thoroughly familiar with their use. The Contractor shall provide and maintain a permanent bench mark at the construction site for the use of mechanics and other subcontractors.

1105.08 AUTHORITY AND DUTIES OF INSPECTOR

A. The Contracting Authority may appoint inspectors to represent the Engineer in the inspection of all materials used in and all work done under the Contract. Such inspection may extend to any part of the work and to preparation or manufacture of materials to be used.
   1. The inspector will not be permitted to modify in any way the provisions of the contract documents or to delay the work by failing to inspect materials and work with reasonable promptness. An inspector is placed on the work to keep the Engineer informed as to its progress and the manner in which it is being performed. The inspector will not be authorized to approve or accept any portion of the work.
   2. Results of inspection tests and examinations will be available to the Contractor on an informational basis. Absence or presence of representative test data does not alter the Contractor's responsibility for plan and specification compliance in accordance with 1104.01.
   3. The inspector will not act as foreman or perform other duties for the Contractors nor improperly interfere with management of the work.
   4. In case of dispute between the Contractor and inspector as to the quality of materials or manner of performing the works, the inspector will have authority to reject materials or suspend the work until the question at issue can be decided by the Engineer. Written notice of suspension of work will be given to the Engineer and Contractor by the inspector.

1105.09 INSPECTION OF WORK

A. The Contractor shall furnish the Engineer with every reasonable facility for ascertaining whether the work is being performed in conformance with the contract documents. At any time before acceptance of the works upon request of the Engineer, the Contractor shall remove or uncover such portions of finished work as the Engineer may direct. After examination has been made, the Contractor shall restore such portions of the work to the standard required by the contract documents.
   1. If work thus exposed or examined proves acceptable, the uncovering or removing and replacing of coverings or the restoring of parts removed, shall be paid for as extra work, except that no payment will be made for work involved in checking smoothness of concrete surfaces.
   2. If work thus exposed and examined proves unacceptable, the Contractor shall replace the defective work in accordance with the specifications.
   3. If work thus exposed and examined proves either unacceptable or deficient, the Contractor will be paid only for work as finally accepted.
   4. Work done without the Engineer having been afforded ample opportunity to provide suitable inspection, or unauthorized work, may be ordered removed and replaced at the Contractor's expenses or may be excluded from the quantities measured for payment.
B. If the specifications, Engineer's instructions, laws, ordinances, or any public authority require any work and/or materials to be specially tested or approved, the Contractor shall give the Engineer timely notice of readiness for review. If the review is to be made by authority other than the Engineer, the Contractor shall notify the Engineer of the date fixed for review. Reviews by the Engineer will be promptly made and, where practicable, at the source of supply.

1105.10 REMOVAL OF DEFECTIVE WORK

A. Any defective work shall be removed and replaced at the Contractor's expense.
B. Should the Contractor fail or refuse to remove defective work when so ordered by the Engineer, the Engineer shall have authority to order the Contractor to suspend further operations, and may withhold payment on estimates until such defective work has been removed and replaced in accordance with the plans and specifications.
   1. Continued failure or refusal on the part of the Contractor to correct defective work promptly shall be sufficient cause for the Contracting Authority to declare the contract in default and to complete the work in accordance with 1108.11.

1105.11 UNAUTHORIZED WORK

A. Unauthorized work and work done in excess of that provided by the lines and grades shown on the plans or as given by the Engineer, or any work done without the authority of the Engineers will be considered as unauthorized and will not be paid for.
   1. Unauthorized work may be ordered to be removed and replaced at the Contractors expense.

1105.12 OTHER CONTRACTS

A. The Contracting Authority reserves the right to do, or to contract for other work adjacent to, or in the vicinity of, the work herein described.
B. The Contractor agrees to permit such other work to progress and to arrange for joint occupation of the site under such provision as the Engineer determines necessary. If in the judgment of the Engineer, such joint occupation of the site impedes progress on the work herein described, the Contracting Authority will proportionally extend the time for completion of the work.
   1. The Contractor hereby waives any claim for damages or extra compensation by reason of such interference with his work.

1105.13 FINAL INSPECTION

A. Upon notification, by the Contractor or his authorized representative, that the work is completed, the Engineer shall make prompt final inspection of each item of work included in the contract. If the work is found not to be in accordance with the contract documents, the Contractor will be advised as to the particular defects to be remedied before final acceptance can be made.

1105.14 RESTRICTIONS ON MOVING AND USE OF HEAVY EQUIPMENT

A. The following restrictions shall apply to the moving and use of heavy equipment:
   1. Movement of equipment to and from the project shall be in compliance with the laws governing the operation of vehicles on the highways of Iowa. Movement and operation of equipment over completed portions of pavements, bituminous surfaces, base courses, and structures which are a part of the project shall be with legal axle loads, except as modified in this article.
   2. In the case of earthwork and shouldering to be done in connection with either rigid or flexible pavement, or pavement widening and resurfacing, no tractor-drawn, earth-moving equipment shall be operated, or driven on or across the pavements, except at designated crossovers, as authorized by the Engineer.
      a. When crossovers are specifically permitted, the Contractor will designate, before use, the location and number of crossovers to be used. The Engineer will not approve crossovers in areas of limited sight distances, near structures, railroad crossings, or at any other location which will place safety of the traveling public in jeopardy. At these crossovers, equipment having axle loads greater than the maximum permitted by law may be used.
      b. Crossovers shall be 30 feet in length measured along the centerline and shall not be closer than 300 feet to each other.
      c. For each crossover used, the Contractor shall, at the Engineer's option, either replace the pavement or pay the Contracting Authority at the rate of five thousand ($5,000.00) dollars on the basis of a two-lane pavement.
      d. In lieu of the surface crossover, approved hauling bridges may be used. The hauling bridge shall accommodate two lanes of public traffic, and it shall be removed from the roadway at the close of each day's operations. When a hauling bridge is used, no payment will be required.
      e. The provisions of the Supplemental Specification for Traffic Controls in effect on the contract letting date, shall apply.
   3. No dragline, cranes, or power shovel shall be operated with any part of the machine resting upon a pavement, bituminous surface, base course, or structure except with approval of the Engineer and in accord with restrictions in that approval.
   4. Under no conditions shall machines equipped with metal lugs or similar projections on the treads be operated on the surface of a pavement, bituminous surface, or base course.
   5. For building shoulders, on completed pavements of any type, the maximum axle load used for equipment operating on pavement shall not exceed the legal axle load, as defined herein.

6. Crawler-type tractors shall not be moved on or off a pavement or base course except at places where the compacted earth adjacent to slab is at least 2 inches higher than the surface of the pavement or base course. Whenever heavy, crawler-type equipment, such as a crane or mixers is moved on or off the edge of a pavement or base course, a substantial timber approach shall be built, at the edge of slab, to prevent overloading or otherwise injuring the edge of the slab.
7. Compacting equipment having axle loads greater than 20,000 pounds may be used on the work under the following provisions:
    a. The equipment shall be transported to and from the work and across the bridges on the work in compliance with laws of the State of Iowa.
    b. For compaction of subbase, the weight of equipment used shall not be greater than that of compaction equipment used in correction of the roadbed for grade and cross section.
    c. For compaction of base course, the weight of equipment used shall not be greater than the weight of equipment used in compaction of the subbase on which the base is placed.
    d. For compaction of surface courses, the weight of equipment shall not be greater than that of equipment used in compaction of the base on which the surface course is placed.
8. For grading or any other type of work, no rollers or other equipment, having an axle load greater than 50,000 pounds or a total weight in excess of 60,000 pounds shall be operated over a culvert, except as may be authorized by the Engineer, and then, in strict compliance with prescribed precautionary measures.

1105.15 PLACEMENT OF FILL MATERIAL IN STREAMS AND WATERBODIES

A. The placement of fill material in streams is regulated by Federal law. The intent of this specification is to require contractor operations in streams and other waterbodies and adjacent swamps, marshes, bogs, or similar areas, to be in compliance with Federal regulations.
B. Fill material shall mean; any material used for the primary purpose of replacing an aquatic area with dry land, or of changing the bottom elevation of a waterbody.
C. Fill material shall consist of clean, suitable, naturally occurring material, free from toxic pollutants in other than trace quantities.
D. Temporary stream crossings shall be bridged or culverted so as not to restrict expected high flows or disrupt the movement of aquatic life native to the stream or waterbodies. Expected high flows are those flows, which the Contractor expects to experience during the period of time that the crossing is in place.
    1. Temporary stream crossings shall:
        a. Not extend over 100 feet into any swampy, bogy, marshy, or similar area that is adjacent to the stream or waterbody.
        b. Be maintained to prevent unnecessary erosion and other nonpoint sources of pollution.
        c. Be removed after they are no longer needed.

1105.16 COST REDUCTION INCENTIVE

A. The Contractor may submit to the Engineer, in writing, proposals for modifying the plans, specifications, or other contract requirements for the sole purpose of reducing the total cost of construction.
    1. The proposals shall not impair, in any manner, essential functions or characteristics of the projects, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance, or design and safety standards.
B. Proposals shall contain the following changes:
    1. Existing requirements and proposed changes,
    2. Contract requirements that must be changed if the proposal is adopted,
    3. A detailed cost estimate of performing the work as stipulated and as proposed,
    4. The time within which the Engineer must make a decision thereon,
    5. The items of work affected by the proposed changes, including any quantity variation attributable thereto.
C. The provisions of this article shall not be construed to require the Engineer to consider any cost reduction proposal which may be submitted hereunder.
    1. Proposed changes in basic design of a bridge or pavement type will not be considered an acceptable proposal.

2. The Contracting Authority will not be liable to the Contractor for failure to accept, or act upon, any proposal submitted pursuant to this article, or for any delays to the work attributable to any such proposal.
3. If a proposal is similar to a change in plans or specifications under consideration by the Contracting Authority for the project at the time said proposal is submitted, or if such a proposal is based on, or similar to, standard specifications, special provisions, or plans adopted by the Contracting Authority after the advertisement for the contract, the Engineer will not accept such proposals and the Contracting Authority reserves the right to make such changes without compensation to the Contractor under provisions of this article.

D. The Contractor shall continue to perform the work in accordance with contract requirements until a change order, incorporating the cost reduction proposal, has been issued. If a change order has not been issued by the date on which the Contractor's cost reduction proposal specifies that a decision thereon should be made, or such other date as the Contractor may subsequently have specified in writing, such proposal shall be deemed rejected.

E. The Engineer shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in construction costs from adopting all, or any part of, such proposal. In determining the estimated net savings, the right is reserved to disregard the contract bid prices if, in the judgment of the Engineer, such prices do not represent a fair measure of the value of work to be performed or to be deleted.

F. The Contracting Authority reserves the right, where it deems such action appropriate, to require the Contractor to share in the Contracting Authority's costs of investigating a cost reduction proposal. Where such a condition is imposed, the Contractor shall indicate his acceptance thereof in writing, and such acceptance shall constitute full authority to deduct amounts, payable to the Contracting Authority from any money due, or that may become due, to the Contractor under the contract.

G. If the Contractor's cost reduction proposal is accepted in whole or in part, such acceptance will be by change order, which shall specifically state that it is executed pursuant to this article. Such a change order shall incorporate the changes in the plans and specifications which are necessary to permit the proposal, or such part of it as has been accepted, to be put into effect and shall include any conditions upon which the Contracting Authority's approval is based, if the approval is conditional.
1. The change order shall also set forth the estimated net savings in the cost of performing the work attributable to the proposal effectuated by the change order, and shall further provide that the Contractor be paid 50 percent of said estimated net savings amount.

H. Acceptance of the cost reduction proposal and performance of the work thereunder shall not extend the time of completion of the contract, unless specifically provided for in the change order authorizing use of the proposal.

I. The amount specified to be paid to the Contractor in the change order which effectuates a cost reduction proposal shall constitute full compensation to the Contractor for the proposal and performance of the work thereof pursuant to the said change order.

J. The Contracting Authority expressly reserves the right to adopt a cost reduction proposal, for general use on contracts administered by the Contracting Authority, when it determines that said proposal is suitable for application to other contracts.
1. When an accepted proposal is adopted for general use, only the contractor who first submitted such proposal will be eligible for compensation pursuant to this article, and in that case, only to those contracts awarded to him/her prior to submission of the accepted proposal and as to which such proposal is also submitted and accepted.
2. Cost reduction proposals identical or similar to previously submitted proposals will be eligible for consideration and compensation under provisions of this article, if the identical or similar previously submitted proposals were not adopted for general application to other contracts administered by the Contracting Authority.
3. Subject to the provisions contained herein, the State or any other public agency shall have the right to use all, or any part of any submitted cost reduction proposal without obligation or compensation of any kind to the Contractor.

PART 1106. CONTROL OF MATERIAL

1106.01 QUALITY OF MATERIALS

A. It is the intent of the specifications that first-class materials shall be used throughout the work, and that these first-class materials shall be incorporated in such a manner as to produce completed construction which is acceptable in every detail. Only materials conforming to the requirements of these specifications, approved by the Contracting Authority, shall be incorporated into the work

B. When more than one kind of manufacture of a material is specified, the option will be with the Contractor, but the choice shall be confined to the materials mentioned.

C. Whenever in any of the contract documents, an item of material or equipment is defined by describing a proprietary product or by using the name of a manufacturer or vendor, the terms “or equivalent”, or “or equal”, if not inserted, shall be implied. This specific item of material or equipment mentioned shall be understood as establishing a standard of type, function, efficiency, minimum basis of design, and quality desired. Other manufacturer’s products of comparable quality, design and efficiency, and suitable for the service intended will be considered, but no change will be made without written approval of the Contracting Authority.

D. Requests for materials substitutions must be submitted in duplicate, or in the quantities required elsewhere in the specifications, and meet the requirements of 1103.09

1106.02 SOURCE OF MATERIALS

A. At the option of the Engineer, the source of supply of each material shall be approved by the Contracting Authority before the delivery is stated.
   1. If requested by the Contracting Authority, representative preliminary samples, of prescribed character and quality, tested in accordance with the methods referred to under samples and tests, shall be submitted by the contractor or producer for examination.
   2. All materials proposed to be used may be inspected or tested at anytime during their preparation and use.
   3. If, after trial, it is found that sources of supply which have been approved do not furnish a uniform product or if products from any source do not meet the specifications, at any time, the Contractor shall furnish approved material from other approved sources. No material which, after approval has in any way become unfit for use, shall be used in the work.

1106.03 SAMPLES AND TESTS

A. Each consignment of materials required by the Engineer, shall be tested or inspected before being incorporated into the work and approved by the same Engineer before it is used.
   1. The contractor shall afford facilities for collecting and forwarding samples as the Engineer may require.
   2. Unless otherwise designated in the standard, supplemental specifications, or instructional memorandums, the inspection, sampling, testing, and basis of acceptance of materials shall be in accordance with the current AASHTO “Standard Specifications for Sampling and Testing of Transportation Materials” including published interim standards.

1106.04 STORAGE OF MATERIALS

A. The Contractor shall be responsible for care and storage of materials delivered for the work or purchased for use thereon. Material which has been delivered and has become damaged before actual incorporation in the work may be rejected by the Engineer even though it may have been previously acceptable. Stored materials shall be located to facilitate thorough inspections.

1106.05 UNACCEPTABLE MATERIALS

A. All materials not conforming to requirements of the specifications at the time they are to be used shall be considered unacceptable, and all such materials will be rejected and shall be removed immediately from the work site, unless otherwise instructed by the Engineer. No rejected materials, the defects of which have been corrected, shall be used until approval has been received.

PART 1107. LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

1107.01 LAWS TO BE OBSERVED

A. The Contractor is presumed to be familiar with all laws, ordinances, and regulations that may, in any manner, affect those engaged or employed by the Contractor, the materials or equipment used, or which may in any way, affect the conduct of the Contractor's work. The Contractor shall conduct his work to avoid conflict with any such laws, ordinances, or regulations, and shall save harmless the Contracting Authority and its representatives against any claim arising from violation thereof.

B. The Contractor shall give preference to Iowa domestic labor, in accordance with the provisions of Chapter 73A of the Code of Iowa, and this provision is hereby specifically made a part of any contract of which these contract documents are a part. A person shall be deemed a domestic laborer of this state if he/she is a citizen and has resided in this state for more than six months.

C. The provisions of Chapter 73A of the Code of Iowa concerning preferences for Iowa products and labor shall not apply to contracts involving work financed wholly, or in part, by the federal government.

D. The Contractor and all subcontractors shall have on file with the Contracting Authority, a valid state of Iowa Contractor's Registration Number, issued by the Iowa Department of Labor Services, in accordance with Chapter 91C of the Code of Iowa.

1107.02 LIABILITY INSURANCE

A. It shall be the Contractor's responsibility to have liability insurance covering all of the construction operations incident to completion of this contract. The Contractor must have on file, with the Contracting Authority, a current "Certificate of Insurance" prior to award of contract. The certificate shall identify the following: insurance company firm name and address, contractor firm names policy period, type of policy, limits of coverage, and scope of work covered, (single project or statewide).

1. This requirement shall apply with equal forces whether the work is performed by -- (1) persons employed directly by the Contractors (2) by a subcontractor or his employees, or (3) by an independent contractor.

B. In addition to the above, the Contracting Authority shall be included as an insured party, or a separate owner's protective policy shall be filed showing the Contracting Authority as an insured party.

C. The liability insurance shall be written by an insurance company (or companies) qualified to do business in Iowa. For independent contractors engaged solely in the transportation of materials, the minimum coverage provided by such insurance shall not be less than required by Chapter 325A, Code of Iowa, for truck operators or contract carriers as defined therein. For all other contractors, subcontractors, and independent contractors, the minimum coverage by such insurance shall be as follows:

Public Liability Insurance
Per person - $500,000.00
Each occurrence - $750,000.00
Property Damage Insurance
Each occurrence - $500,000.00

D. Failure on the part of the Contractor to comply with the requirements of this article will be considered sufficient cause to suspend the work, withhold estimates, and to deny the Contractor from receiving further contract awards, as provided in 1103.01.

1107.03 PATENTS AND ROYALTIES

A. The Contractor shall be responsible for all claims for infringement of patents, or for royalties on tools, machinery, appliances, devices, or materials used in construction and completion of the work, except as are specifically required by the contract documents.

1. The Contractor agrees that the Department may retain out of the money that is or may become due the Contractor an amount to cover all such claims and to retain the same, until all such claims are paid or adjusted.

B. The Contracting Authority assumes responsibility for payment of claims for damages from patent or copyright infringement or for royalties on material processes, specifications, or types of construction that are required by the contract documents.

1107.04 RESTORATION OF CONSTRUCTION WORK OPENED BY PERMIT

A. Prior to final acceptance, if any repairs to the work constructed hereunder are made necessary by construction or repair of drains or sewers, laying or repairing of pipes or conduits for telegraphy, telephone or electric wires, or from any other disturbance of said work under permission issued by the Contracting Authority, the Contractor shall, upon notification by the Engineer, immediately make necessary repairs in conformity with the specifications.
   1. Such repairs shall be paid for as extra work, however, no compensation will be allowed when such repairs are made necessary by the Contractor's negligence or carelessness.

B. The Contractor shall not authorize any person or persons to make alterations or additions to the construction work unless a permit duly authorized by the Contracting Authority is presented.

1107.05 FEDERAL PARTICIPATION

A. The attention of the Contractor is called to the provisions of the Acts of Congress known as the "Land and Water Conservation Fund Act", the "Federal Aid in Wildlife Restoration Act", the "Federal Aid in Fish Restoration Act", the "Boating Safety Act", the "Superfund Amendments and Reauthorization Act ", the "Clean Water Act" and amendments thereto, and any other acts of congress providing for fish and wildlife of conservation improvements.
   1. When the United States Government is to pay for all or any portion of the cost of an improvement or project, the construction work, although it is under the direct supervision of the Contracting Authority and subject to the laws of the State of Iowa, is also subject to the above-mentioned Acts of Congress and all rules, regulations, and reimbursements that may be imposed by the federal authority thereunder. Such construction work will, therefore, be subject to inspection by the duly authorized agents of the federal government, but such inspections will not make the federal government a party to the contract.

B. On all contracts involving Federal aid, all steel products incorporated into the work must have been manufactured in the United States. The Engineer may allow minimal amounts of these materials from foreign sources, provided the cost does not exceed 0.1 percent of the contract sum or $2,500, whichever is greater.

1107.06 SAFETY, HEALTH, POLLUTION AND SANITATION

A. In the performance of his contract, the Contractor shall comply with all applicable laws, rules, regulations, and ordinances governing safety, health, pollution, sanitation, noise control, and disposal of waste materials, and shall make available such additional safeguards, safety devices, protective equipment, and take such actions as are reasonably necessary to protect life and health of employees and the public.
   1. The Engineer will not act as an enforcement agent for compliance of rules and regulations governing industrial safety. However, violations of properly promulgated laws, rules, regulations, and ordinances reported to the Engineer by responsible agencies may result in the issuance of a suspension order until such time as the violation is corrected.

B. The Contractor shall make adequate provisions satisfactory to the Engineer for safety of inspectors, particularly at sampling locations. Provisions shall include guards for moving belts, pulleys, and wheels near the sampling point and a stable platform to be used when sampling is to be done from an elevated location.

C. There shall be suitable retention dams, in areas where approved liquid asphaltic material, or asphalt cement are stored and used, to minimize pollution of nearby areas from effect of normal rains. The Contractor shall take other necessary precautions to prevent pollution of streams, lakes, ponds, reservoirs, and other areas with fuels, oily bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

D. The disposal by open burning of landscape waste originating on the construction site shall be permitted unless prohibited by local ordinances or regulations. However, the burning of landscape waste produced in clearing, grubbing, and construction operations shall be limited to areas located at least one-fourth mile from any inhabited buildings. Rubber tires will not be used to ignite landscape waste.

E. The Contractor shall be specifically responsible for adhering to all local burning ordinances or regulations, and to ascertain what the local burning restrictions consist of in addition to the regulation stated above and to see that all subcontractors comply with those restrictions.

F. All internal combustion engines, used for any purpose on the job, or related to the job, should be equipped with a muffler of the type recommended by the manufacturer. No internal combustion engine will be operated

without a muffler. Faulty or damaged mufflers must be replaced. Machinery must be properly maintained at all times in order to limit engine noise, as well as other extraneous noise.

G. When directed by the Engineer, the Contractor shall apply moisture to the construction area and haul routes, as necessary, to prevent the spread of dust, at no expense to the Contracting Authority.

1107.07 PUBLIC CONVENIENCE AND SAFETY

A. The Contractor shall conduct the work as to assure the least possible obstruction to access by the residents along the project. The Contractor should schedule and conduct the work in such a way as to provide for their safety and convenience.

1. Work and materials required by the Engineer for public convenience and safety in excess of that provided for in the contract, shall be considered as provided for in 1109.03.

1107.08 BARRICADES AND WARNING SIGNS

A. The Contractor shall take every reasonable precaution to prevent the public from interfering with the work, and to prevent the work from interfering with the public, for providing for safety of the general public traveling to, through, within, along, and across the project, and shall take such precautions, measures, or acts as are required herein and as specifically required by the contract documents or by the Engineer. In addition,the Contractor shall provide such additional safeguards as deemed necessary to protect equipment, the work, and the public at the Contractors own expense.

B. The Contractor shall erect and maintain suitable barriers, and at night, such lights, as will prevent accidents to persons or property in and around the area of work.

C. The Contractor shall provide at his own expense, such security guards as are necessary to protect equipment and to maintain proper lighting. Security guards that may be necessary for the protection of the public shall be provided by the contractor on written order from the Engineer.

D. Whenever the work is under the Contractor's control, the Contractor shall be held responsible for any damage to the newly completed portions of the work resulting from public misuse.

1107.09 USE OF EXPLOSIVES

A. When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property. The Contractor shall be responsible for all damage resulting from use of explosives.

B. All explosives shall be stored in a secure manner in compliance with all laws and ordinances and in quantities maintained at a practical minimum. Storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided, satisfactory to the Engineer and, in general, not closer than 1,000 feet from the road or from any building, camping area, or place of human occupancy.

C. The Contractor shall notify each public utility company, having structures in proximity to the site of the work, of the intent to use explosives. Such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury.

1107.10 PROTECTION AND RESTORATION OF PROPERTY

A. The Contractor shall replace or renew fences, sidewalks, or other property damage by reason of the work or the negligence of the Contractors employees. The Contractor shall take suitable precautions to prevent damage to telephone, telegraphy, and electric transmission lines along the highway and to pipes, conduits, and other underground structures. The Contractor shall carefully protect from disturbance all land monuments and property marks until an authorized agent has witnessed or otherwise referenced their locations and shall not remove them until so directed.

1. The Contractor shall be responsible for damage or injury to property resulting from the prosecution of his work, however, responsibility shall not extend to damage to fences, telephones, telegraph, or electric lines occupying the right-of-way unlawfully, provided due caution has been used in removing them. The Contractor's responsibility shall not be released until the work under the contract is completed and accepted.

1107.12 RESPONSIBILITY FOR DAMAGE CLAIMS

A. The Contractor shall indemnify and save harmless the state of Iowa, the Contracting Authority and other agencies which have concurred in the award of contract, their officers and employees, from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property because of any act, omissions or neglect in safeguarding or performing the work, or through use of unacceptable materials in constructing the work, and so much of the money due the said Contractor, under and by virtue of the contract, as may be considered reasonable and necessary by the Contracting Authority for such purpose, may be retained for the use of the State, or in case no money is due, the surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages, as aforesaid, shall have been settled and suitable evidence to that effect furnished to the Contracting Authority, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence of adequate protection by public liability and property damage insurance.
   1. Notwithstanding the above, it is specifically agreed between the parties executing this contract that it is not intended by any of the provisions of any part of the contract documents to create in the public or member thereof a third-party beneficiary hereunder, or to authorize anyone not a party to this contract to maintain a suit for personal injuries or property damage pursuant to the terms of provisions of this contract.
   2. The duties, obligations, and responsibilities of the parties to this contract with respect to third-parties shall remain as imposed by law. It being the intention of the parties that indemnity herein provided shall not extend to acts of omission, of negligence for which the Contracting Authority is solely responsible. But indemnity shall extend to all claims in which the Contractor and the Contracting Authority are found to be either jointly or concurrently negligent.

B. Responsibility of the Contractor for providing warning devices, required by 1107.08 to avoid damages or injuries on any portion of the work covered by the contract, shall not cease until the work on such portion has been released by the Engineer.
   1. A release shall be construed to mean a written statement by the Engineer to the effect that the Contractor may cease to maintain barriers and lights, that the work may be opened to the public and that the Contractor is relieved of further maintenance of that portion of the work. Such release shall not constitute an acceptance of the work.

C. The Contractor's responsibility for maintenance of lights on any individual structure shall cease upon final acceptance of such structure, or when specifically released in writing by the Engineer.

1107.13 OPENING OF SECTION OF CONSTRUCTED WORK TO THE PUBLIC

A. When any substantial portion, part, or feature of a contract is completed to the extent that its stability and integrity is not dependent upon completion of the other item, or work required in the contract, that portion, part, or feature may be released by the Engineers after conferring with the Contractor, and opened to traffic or received for public usage prior to final approval and acceptance of all work involved in the contract.
   1. The Contractor will not be responsible for damages due to the elements or the ordinary use of the public to those portions, parts, or features of the work which have been released by the Engineer.
   2. The Contractor will be responsible for any damages which may be caused by defective work or failure to comply with the contract documents.

B. The above provisions relating to a release by the Engineer will be applicable only to those portions, parts, or features of the contract for which the Engineer has furnished to the Contractor a written release.

1107.14 CONTRACTOR'S RESPONSIBILITY FOR WORK

A. The Contractor shall be responsible for the care and maintenance of partially completed and furnished work on any portion of the project until released by the Engineer from such responsibility. It will be the Contractor's responsibility to adjust the Contractor's operation or method of operation to prevent any damage of any nature to any portion of the partially completed or completed work. Repair work shall be done promptly upon being so ordered by the Engineer.

1107.15 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES

A. At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies, or are adjacent to other property, damage to which might result in considerable expense,

loss, or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

B. The Contractor shall cooperate with owners of underground or overhead utility lines in their removal and rearrangement operations, in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

C. In the event of interruption to water or utility services, as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with said authority in restoration of service.
   1. If water service is interrupted, repair work shall be continuous until service is restored.
   2. No work shall be undertaken around fire hydrants until provision for continued service has been approved by the local fire authority.

1107.16 PERSONAL LIABILITY OF PUBLIC OFFICIALS

A. In carrying out any of the provisions of the contract, or in exercising any power or authority granted to any agency or representative of the Contracting Authority thereby, there shall be no liability upon such agent or representatives including the Engineer or authorized agents, either personally or as an official of the Contracting Authority, it being understood that in such matters the agent acts as the agency and representative of the Contracting Authority.

1107.17 NO WAIVER OF LEGAL RIGHTS

A. The Contracting Authority shall not be precluded or stopped by any measurement, estimate, or certificate made, either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate, or certificate is untrue or incorrectly made, or that the work or materials do not, in fact, conform to the contract.

B. The Contracting Authority shall not be precluded or stopped, notwithstanding any such measurement, estimate, or certificate, and payment in accordance therewith, from recovering from the Contractor and the Contractor's sureties such damages as it may sustain by reason of the Contractor's failure to comply with the terms of his contract.

C. Neither acceptance by the Contracting Authority, or any representative of the Contracting Authority, nor any payment for or acceptance of the whole or part of the work, nor any extension of time, nor any possession taken by the Contracting Authority, shall operate as a waiver of any portion of the contract, or for any power herein reserved, or any right to damages herein provided. A waiver of any breach of contract shall not be held to be a waiver of any other or subsequent breach.

PART 1108. PROSECUTION OF PROGRESS

1108.01 SUBLETTING OF CONTRACT

A. At the time specified by the contract documents or when requested by the Engineer, the Contractor shall submit in writing to the Contracting Authority for approval, the names of the subcontractors proposed for the work. Subcontractors may not be changed except at the request of and with the approval of the Contracting Authority.
   1. The Contractor is responsible to the Contracting Authority for the acts and omissions of the subcontractors, and of their direct and indirect employees, to the same extent as the Contractor is responsible for the acts and omissions of its own employees.
   2. The contract documents shall not be construed as creating any contractual relation between the subcontractor and the Contracting Authority.

B. The Contractor shall bind every subcontractor and every subcontractor agrees to be bound by the terms of the contract, the contract documents, the plans, the general conditions of the contract, the supplementary general conditions, the special conditions, and the specifications as far as applicable to the subcontractors' work.

C. The subcontractor shall be bound to the Contractor by the terms of the contract, the contract documents, the plans, the general conditions and specifications, and to assume toward the Contractor all the obligations and responsibilities that the Contractor, by those documents, assumes towards the Contracting Authority.

1. The Contractor agrees to be bound to the subcontractor by all the same obligations that the Contracting Authority assumes to the Contractor under the terms of said documents, and by all the provisions thereof affording remedies and redress to the Contractor from the Contracting Authority.

D. The Contractor shall not assign, sublet, or transfer in whole or part any of the work herein specified without the written consent of the Contracting Authority. Any such assignment, subletting, or transfer shall not in any manner relieve the Contractor from any of the responsibilities assumed herein.

E. For convenience of reference and to facilitate the letting of contracts and subcontracts, the specifications are separated into title sections. Such separations shall not, however, operate to make the Engineer an arbitrator to establish limits to the contracts between Contractor and subcontractors.

F. This article shall further be applicable to contracts involving Federal-aid participation in construction insofar as they are consistent with the required provisions for Federal-aid contracts attached to the contracts, and shall be additional specifications insofar as they cover matters not covered by the required provisions for Federal-aid contracts.

1108.02 PROSECUTION OF WORK

A. The proposal form may designate the contract period by either completion date, approximate starting date, of specified starting date.

B. Intermediate contract periods may be designated for completion of certain portions of the contract. The contract period for each portion and the liquidated damages, if any, will be listed in the Special Provisions.

C. The return of the signed and executed contract to the Contractor shall serve as notice to the Contractor that the contract bond is acceptable, that the contract is in force, and that the Contractor may complete arrangements for materials and other work in accordance with the contract documents.

D. Should delay become apparent before or after the work is started, the Engineer will immediately notify the Contractor, in writing, that work on the contract will be delayed and, if possible, the approximate duration of such delay. For delays exceeding 2 weeks, new construction dates may be established by the Engineer after consulting with the Contractor.

1. Specified Starting Date: When a starting date is specified, working days will be charged to the Contractor starting on the specified starting date or 10 days after execution of the contract, whichever is later. Starting work prior to the specified date will be considered upon request, and working days will be charged when work starts.
2. Approximate Starting Date:
    a. Site available immediately, as determined by the Engineer: Anytime after execution of the contract and on or after the approximate starting date, the Contractor may work, weather and specifications permitting. Working days will be charged any time the Contractor is working on/or after the approximate starting date. Starting work prior to the approximate starting date will be considered upon request. If allowed, working days will be charged.
    b. Site Availability Date Unknown, as determined by the Engineer: It is expected the site will be available by the approximate starting date. If it appears the site will not be available by the approximate starting date, the Engineer will inform the Contractor of the delay and if possible the duration of the delay. The Contractor may commence work, weather and specifications permitting, any time after execution of the contract and on or after the approximate starting date provided the site has become available. If work is started under these conditions, working days will be charged. Starting work before the approximate starting date and before the site is available, will be considered only after the Contractor has submitted a signed waiver of any right to claim extra compensation for damages due to delays from any cause related to the early commencement. If approved, working days will not be charged when working prior to the date of site availability. If the Contractor is working on the project when the site becomes available, working days will be first charged on the following day.
3. Specified Completion Date: The Contractor may commence work any time after execution of the contract, weather and specifications permitting.
    a. Working days will begin to be charged whenever the Contractor starts work.
4. Winter Work: The proposal may require winter work on all or portions of the project, and working days will be counted as indicated therein. When not so specified, the Contractor may work, unless advised to the contrary be the Engineers between November 15 and April 1 with no working time charged. If the best

interest of the Contracting Authority so dictates, the Engineer may require the Contractor to continue work after November 15.

a. Working days will not be charged if working time remains on November 15, and working days may be charged for days worked if no working time remains on November 15.

5. Notice to Proceed: A notice to proceed will be issued when, in the opinion of the Engineer, considering the approximate starting date, site availability, and working days allowed, failure of the Contractor to commence work places the timely completion of the project in jeopardy. The starting date in the notice to proceed will not be less than 15 calendar days after the date of the issuance of the notice. Working days will be charged beginning with the starting date established by the notice or when the Contractor starts work if prior thereto. A notice to proceed will be issued, except:
   a. It will be assumed when a specified starting date is used.
   b. It will be assumed when a specified completion date is used, the number of working days allowed will be counted back from the specified completion date, exclusive of Saturdays, Sundays, and holidays, to determine the first day working days will be charged.
   c. It may be included as an agreed starting date at a preconstruction conference for projects with an approximate starting date.
   d. It will be assumed when the Contractor is working at the time for issuance of the notice.
   e. It will be assumed, if an early work waiver is approved, as having been issued at the time of site availability, as documented in the project records.
6. Weekly Report of Working Days: Whenever the Contractor is subject to being charged with working days, the Engineer will furnish the Contractor a weekly statement indicating the working days to be charged against the Contractor for that period. Should the Contractor believe the statement to be inaccurate, a statement should be submitted to the Engineer, in writing, stating the objection and reasons, within 10 calendar days after receipt of the statement. If the Contractor fails to submit an objection within that time, the original statement may be considered as accurate and final.
7. Work Progress: The progress of the work shall be at a rate sufficient to complete the contract within the time allowed. If it appears that the rate of progress is such that the contract will not be completed within the time allowed, or if the work is not being executed in a satisfactory and workmanlike manner, the Engineer may order the Contractor to take such steps as necessary to complete the contract within the period of time specified or to prosecute the work in a satisfactory manner.
   a. If the Contractor fails to comply with such order within 2 weeks after receipt of the order, the Contractor may be disqualified from receiving any additional bidding proposals, and the Contracting Authority shall have the right to declare the contract in default and to complete the work in accordance with 1108.11.
   b. Failure of the Contracting Authority to issue such order shall not alter the Contractor's responsibility under the contract.
   c. The Contractor's sequence of operations shall be such as to cause as little inconvenience to the general public as possible.
8. Schedule of Staging: On any project, or part of a project, on an existing road where the work may prohibit or restrict public or private access that has been previously available, the Contractor may be required to submit a schedule of staging for the Engineer's approval before work is started.
   a. Preliminary work may be required in stage construction, even though the work involved in these operations is similar, in order to minimize the inconvenience to the public and those to whom access has been previously available. This requirement will apply equally to work that is subcontracted.
9. Accelerated Work Schedule: An accelerated work schedule may be required by a note on the proposal. When required, the Contractor shall marshal the necessary forces, including but not limited to: extra crews, subcontractors, extra work hours, or other acceptable methods to insure completion of the projects or various stages of the projects within the contract period and in compliance with the specifications.
   a. A work plan shall be submitted to the Engineer for review prior to commencement of work. Work will be permitted on a 24-hour-day basis and on Sundays and holidays when traffic interference exists, though work may be restricted during peak traffic periods. No credit will be allowed for delayed or slow delivery of materials. The special provisions may include other requirements or modifications for the accelerated work schedule.

10. Preconstruction Conference: The Engineer shall schedule and conduct a preconstruction conference. The Contractor and intended subcontractors shall participate in this conference. The Engineer will invite utilities and others having responsibilities or interest in the work.

1108.03 LIMITATIONS OF OPERATIONS

A. The Contractor shall conduct the work so as to create a minimum amount of inconvenience to the public. At anytime, when in the judgment of the Engineer, the Contractor has obstructed, closed, or is conducting his/her operations on a greater portion of the project vicinity than is necessary for the proper prosecution of the work, the Engineer may require the Contractor to finish the section on which work is in progress before work is started on any additional sections.

B. Whenever work which is being done by other contractors or subcontractors is contiguous to, or a part of the work included in this contract, the Engineer shall in case of dispute, determine and define the respective rights of the various interests involved, in order to secure the completion of all parts of the work in general harmony and with satisfactory results.

C. Except when an accelerated work schedule is required, no work will be permitted on Sundays, holidays observed by the Department of Natural Resources or within the time frame of dusk until dawn (as observed by current Farmer's Almanac) unless explicit permission from the Engineer has been obtained.
   1. The Contractor should request a determination of the holidays to be observed at the beginning of each calendar year.

1108.04 METHODS AND EQUIPMENT

A. The methods, equipment, and appliances used shall produce a satisfactory quality of work and shall be adequate to maintain the schedule of progress specified. Equipment used on any portion of the project shall be such and its use so regulated that no serious or irreparable damage to the adjacent property, or highways will result from its use. If damage does occur to the highways suitable repairs shall be made.

B. When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free do use any methods or equipment that will accomplish the contract work in conformity with the requirements of the contract, as demonstrated to the satisfaction of the Engineer.

C. When the contract specifies that the construction be performed by use of certain methods and equipment, such methods and equipment shall be used, unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the contract, he/she may request approval from the Engineer to do so.
   1. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing construction work in conformity with contract requirements.
   2. If after trial use of the substituted methods or equipment the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue use of the substitute method or equipment and shall complete the remaining construction with the specified method and equipment.
   3. The Contractor shall remove the defective work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved or in contract time as a result of authorizing a change in methods or equipment under these provisions.

1108.05 CHARACTER OF WORKERS

A. Any employee of the Contractor who is careless, incompetent, or disorderly, or who refuses or neglects to perform work in accordance with the specifications, or who shall commit trespass upon any public or private property in the vicinity of the work, shall be discharged upon the written request of the Engineer and shall not be reemployed on any of the work unless written permission is given by the Engineer.

1108.06 TEMPORARY SUSPENSION OF WORK

A. Work shall be suspended, wholly or in part when, in the opinion of the Engineer, weather or other conditions are unfavorable to its satisfactory prosecution.
   1. Work shall also be suspended at the direction of the Engineer pending settlement of disputes arising of failure of the Contractor to comply with provisions of the contract. Written notice of suspension of work shall be given by the Engineer.
   2. When the conditions causing suspension no longer exists, written notice to resume work will be given to the Contractor by the Engineer. Promptly after such written notices, the Contractor shall resume prosecution of the work as provided in 1106.02.

B. The start of work may be delayed or work may be suspended upon request of the Contractor and with approval of the Engineer. The Engineer may require the request to be in writing and also may require the Contractor to include with the request a schedule for satisfactory completion of the work.

1108.07 EXTENSION OF CONTRACT PERIOD

A. An extension of the contract period will be granted by the Engineer for additional work requiring additional construction time and may result from a modification of the plans or extra work.
   1. If any delay is caused by active interference by the Contracting Authority, the Contracting Authority will grant such an extension of time for completion of the contract as will, in the opinion of the Engineer, compensate for such delay. An extension of the contract period will be granted by the Contracting Authority for:
      a. Additional work resulting from a modification of the plans for the project, or
      b. Other reasons beyond the control of the Contractor which, in the Contracting Authority's judgment would justify such extension.

B. All claims for extension of the contract period shall be made in writing to the Engineer no more than thirty days after the occurrence of the delays otherwise they shall be waived. In the case of continuing cause of delays only one claim is necessary.

1108.08 LIQUIDATED DAMAGES

A. Time is an essential element of the contract and it is important that the work be pressed vigorously to completion.

B. For each calendar day that any work shall remain uncompleted after the end of the contract period, number of working days allowed, or any extension granted under 1108.07, the amount per calendar day specified in the proposal form will be assessed, not as a penalty, but as predetermined and agreed liquidated damages.
   1. The Contracting Authority will prepare and forward to the Contractor an invoice for such liquidated damages.
   2. The final payment will be withheld until payment shall have been made on this invoice.

C. Assessment of liquidated damages will be based only on the number of working days required to complete the work in excess of the specified working days allowed, plus authorized extensions thereto.

D. This provision for the assessment of liquidated damages for failure to complete work within the contract period does not constitute a waiver of the Contracting Authority's right to collect any additional damages other than time delays which the Contracting Authority may sustain by failure of the Contractor to carry out the terms of the contract.

1108.09 FAILURE TO COMPLETE WORK WITHIN CONTRACT PERIOD

A. If the Contractor fails to complete his work within the contract periods or any extension thereof, as provided in 1108.07, upon written notice to the Contractor and surety, said contract shall be in default. The Contracting Authority may, at its option, permit the Contractor or the Contractor's surety to complete the work included in the contracts or may proceed to complete the work in accordance with 1106.11. In either event, the Contractor or the Contractor's surety shall be responsible for all cost's incident to the completion of the work, and also for the liquidated damages stipulated in the proposal form. The Contracting Authority may waive such portion of the liquidated damages as may accrue after the work is in condition for safe and convenient use by the public.

1108.10 CONTRACTS IN DEFAULT

A. The Contracting Authority may declare a contract in default for any one of the following reasons:

1. Failure to complete the work within the contract period or any extension thereof,
2. Failure or refusal to comply with an order of the Engineer within a reasonable time,
3. Failure or refusal to remove rejected materials,
4. Failure or refusal to correct any defective or unacceptable work,
5. Bankruptcy or insolvency, or the making of an assignment for the benefit of creditors,
6. Failure to carry on the work in an acceptable manner.

1108.11 COMPLETION OF CONTRACTS IN DEFAULT

A. If for any reason a contract is declared in default, the Contracting Authority shall have the right, without process or action at law, to take over all or any portion of the work and complete it, at its option, either by day labor or by reletting the work.
   1. Written notice shall be given the Contractor by the Contracting Authority that the contract has been declared in default, and upon receiving such notices the Contractor shall peaceably relinquish possession of the said work or the parts thereof specified in the notice.

B. The Contracting Authority may, at its option and, at a rental which it considers reasonable, retain all material, equipment, and tools on the work until the work has been completed.

C. Neither the Contracting Authority nor any member or employee thereof shall be in any way liable or accountable to the Contractor or the Contractor's surety for the method by which the completion of said work, or any portion thereof, may be accomplished, or for the price paid therefor.
   1. Should the cost of completing work be in excess of the original contract prices the Contractor and the Contractor's surety shall be held responsible for such excess cost.
   2. Should the cost of such completion, including all proper charges, be less than the original contract price, the amount so saved shall be paid to the Contractor.
   3. Neither by taking over the work nor by declaring the contract in default shall the Contracting Authority forfeit the right to recover damages from the Contractor or the Contractor's surety for failure to complete the entire contract.

1108.12 REMOVAL OF EQUIPMENT

A. In the case of cancellation of this contract before completion from any cause whatsoever, the Contractor, if notified to do so by the Contracting Authority, shall promptly remove any part or all of his equipment and supplies from the property of the Contracting Authority. In the event of failure of the Contractor to remove such equipment and supplies within thirty days after the issuance of the notification for removal, the Contracting Authority shall have the right to remove such equipment and supplies at the expense of the Contractor.

1108.13 ORDER OF COMPLETION AND USE OF COMPLETED PORTIONS OF THE WORK

A. The Contractor shall complete any portion or portions of the work in such order of time as the Engineer may require. The Contracting Authority shall have the right to take possession of, and use any completed or partially completed portion of the work at anytime, but such taking possession and use shall not be deemed as acceptance of the work so taken or used or any part thereof. If such prior use increases the cost or delays the work, the Contractor shall be entitled to such extra compensation or extension of time, or both, as determined by the Engineer.

1108.14 METHOD OF SERVING NOTICES

A. Any notice to be given by the Contracting Authority to the Contractor under this contract shall be deemed to be served if delivered to any office used by the Contractor, or foreman, or agent, at or near the work, or deposited in the post office, postpaid, addressed to the Contractor at the last known place of business.

1108.15 TERMINATION OF CONTRACTOR'S RESPONSIBILITY

A. The contract shall be considered completed when the work has been accepted in writing by the Contracting Authority.

1. Such acceptance shall release the Contractor from all further obligation with respect thereto, except as to conditions and requirements set forth in the performance bond, and if, within one year after the final acceptance or a longer period of time, as may be prescribed by law or by the terms of any applicable guarantee required by the contract documents, any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct it promptly after receipt of a written notice from the Contracting Authority to do so unless the Contracting Authority has previously given the Contractor a written acceptance of such conditions specifically starting the condition that is accepted.
2. The Contracting Authority shall give such notice promptly after discovery of the condition. All such defective or non-comforming work shall be removed from the site if necessary, and the work shall be corrected to comply with the contract documents without cost to the Contracting Authority.

B. The Contractor shall bear the cost of making good, all work destroyed or damaged by such removal or correction of separate contractors.

PART 1109. MEASUREMENT AND PAYMENT

1109.01 MEASUREMENT OF QUANTITIES

A. The work completed under the contract shall be measured according to United States standard measures. Payment will be based on the actual quantity of work performed under the various work classifications in the contract, unless otherwise provided below, or by the method of measurement for the various classes of work.

B. By written agreement between the Contractor and the Engineer, final settlement may be made on the basis of contract quantities without final field measurements. Such an agreement may be made before work is started or after work has been completed, if no material deviation from the original plans is involved.
1. Except for those items for which quantities cannot be accurately predetermined0, the contract quantities have been accurately and properly estimated, but adjustments will be made for obvious errors or authorized changes.
2. The Engineer shall exercise such controls and make such measurements, as are necessary, to assure that each item of work is done in substantial compliance with the contract documents. The use of this agreement for payment shall not be considered as a change in the contract.

1109.02 SCOPE OF PAYMENT

A. The Contractor shall accept the compensation herein provided as full payment for furnishing all materials labor, tools, and equipment for performing all work under the contract or any extension thereof allowed under 1108.07, also, for all costs arising from the action of the elements or other natural causes, agreements, and performance, nonperformance, or delays involving other contractors and third parties, or injunctions or lawsuits resulting therefrom, or from any unforeseen difficulties not otherwise provided for in the specifications and which may be encountered during prosecution of the work and up to the time of acceptance thereof, except damage to the work due to acts of war. Nothing herein shall in itself be construed to prejudice or deny any claim filed under provisions 1109.12.

B. The contract price for any item shall be full compensation for acceptable work and for materials, equipment, tools, and labor for performance of all work necessary to complete the item in accordance with the plans and specifications, except as specifically exempt in the clauses covering the basis of payment for the item.

1109.03 ADJUSTMENT IN CONTRACT PRICE

A. When the measured quantity of any item varies by more than 20% from the estimated quantity specified in the contracts an adjustment in price may be made for such item of work, and the adjustment will be made on the full variance from the contract quantity. Such adjustment may be requested by either party to the Contract.
1. If the contract sum for an item is less than five thousand ($5,000.00) dollars, the price of that item will not be subject to adjustment.

B. If the increase or decrease in quantity is due to an alteration in plans, any price adjustment shall be requested and agreed upon before the work is done. If the increase or decrease in quantity is not the result of an alteration in plans, but results from errors in original estimates, or unforeseen conditions, price adjustments may be requested after the work is completed.

C. In making price adjustments, consideration shall be given to the portion of the cost of the work that can be classified as fixed costs, independent of the exact quantity of work performed, such as transportation and

installation costs on equipment, overhead costs, etc. Any price adjustment shall be arrived from the standpoint that neither party to the contract shall be penalized by the increase or decrease in quantities which occasioned the price adjustment.

D. If changes or alterations, as outlined in 1105.04, result in a substantial increase or decrease in cost or difficulty of the work, appropriate modifications will be made in the contract by extra work order, regardless of the quantity.
E. All price adjustments shall be agreed to by the Engineer and the Contractor and shall be subject to the approval of the Contracting Authority.

1109.04 PAYMENT FOR WORK PERFORMED

A. All contract price adjustments approved by the Engineer shall be subject to the concurrence of the Contracting Authority.
B. The Contractor will receive and accept payment for work performed under his contract as follows:
    1. Items or Work Performed Which Are Covered by Definite Prices Stipulated in the Contract: For all items of acceptable work performed which are covered by definite unit prices or lump-sum amounts specified in the contract, the Contractor shall receive and accept compensation at the rate specified in the contract, except as provided in 1109.03 and for items identified as that of "significant change" as provided in 1109.17.
    2. Extra Work: Extra work ordered by the Engineer, of a quality or class not covered by the contract, will be paid for, either at an agreed price or on a force-account basis.
    3. Agreed-Price Basis: For extra work ordered by the Engineer and performed on an agreed-price basis, the Engineer and the Contractor shall enter into a written agreement before such work is undertaken. This written agreement shall describe the extra work that is to be done and shall specify the agreed price or prices.
    4. Force-Account Basis: Extra work performed on a force-account basis will be paid for in the following manner:
        a. For laborers, timekeepers, foremen, and superintendents, the Contractor shall receive the rate of wage shown on previous payrolls for the time they are actually engaged in the extra work, to which shall be added an amount negotiated up to 15% thereof, plus the amount of social security tax imposed by law upon the Contractor because of such force-account work, plus the cost of worker's compensation, public liability insurance, and employment security contributions. The percentage shall cover compensation for furnishing of necessary small tools for the work together with all other overhead expense items.
        b. The wage of the superintendent, timekeeper, or foreman who is employed partly on force-account work and partly on other work shall be prorated between the two classes of work according to the number of persons shown by the payroll, as employed on each class of work.
        c. For materials used on force-account work, the Contractor shall receive the actual cost of materials delivered on the work, including the freight and handling charges as shown by original receipted bills, to which cost shall be added an amount negotiated to 15% thereof.
        d. For machinery, tools, or equipment, fuel and lubricants therefor, except small hand tools which may be used, the Engineer shall allow the Contractor a reasonable rental rate to be agreed upon in writing before such work is begun. No profit percentage shall be added to the rate.
        e. Compensation, as herein provided, shall be accepted by the Contractor as payment in full for extra work done on a force-account basis. It will be assumed that such payment includes the use of tools and equipment for which no rate is allowed, overheads and profit.
        f. At the end of each day, the Contractor shall prepare payrolls in duplicate for labor furnished on a force-account basis, using the Contracting Authority's standard force-account forms. Both copies shall be signed by the inspector and Contractor's representative. One copy shall be furnished to the Engineer and one to the contractor.
        g. Claims for extra work performed on a force-account basis shall be submitted to the Engineer in triplicate. To the claims shall be attached such receipt or statements as the Engineer may require in support of such claims. Such claims shall be filed not later than the tenth day of the month following that in which the work was actually performed, and shall include all labor charges, rental charges on machinery, tools, and equipment, and all material charges insofar as they are available.

5. Deficient Work: Payment for work judged by the Engineer to be deficient work shall be made at the reduced rate specified in the contract documents or, if no such rate is specified, at a modification of the contract prices as determined by the Engineer.

1109.05 CANCELLED WORK

A. The Contracting Authority shall have the right to cancel any or all items from the contract when unforeseen circumstances, failure to secure permits, approvals, loss of funding, unanticipated design changes, or other reasons beyond the control of the Contractor prevent or unreasonably delay completion of the contract, or of certain items of the contract, or when the Contracting Authority determines that cancellation is in the public or national interest.
B. The Contractor may be prevented from starting work on a contract, or an identified phase of a contract, as a result of a delay caused by the Contracting Authority or others.
C. When the contract period is defined by approximate starting date and the delay prevents the Contractor's starting work on the contract or an identified phase of the contract for 30 days beyond the date which, by notice to the Engineer, the Contractor proposed to start work, the Contractor may request cancellation by written notice to the Engineer stating the reasons.
D. In either case, within 30 days from the date of the request, the Engineer will eliminate or minimize, if possible, the cause for the delay and issue a notice to proceed, redefine the basis on which the work is to proceed, or cancel the contract or phase of the contract.
E. The Contractor shall not use delays that occur prior to starting work or an identified phase of the work as a basis of a claim against the Contracting Authority except for an extension of contract period.
F. Notices described in this article should be transmitted by certified mail.
G. For finished portions of items canceled, the Contractor will be paid at the contract unit prices, in accordance with the provisions of 1109.04. For finished portions of major items canceled, the Contractor will be paid as provided in 1109.17. For all items, materials ordered and delivered for the unfinished portion of such canceled, or omitted items, the Contracting Authority will pay cost plus 10% as an overhead charge. The Contractor's expense for work of handling or transporting such material shall be included in computing the cost.
H. The Contracting Authority will also pay any actual expenses sustained by the Contractor by reason of such cancellation or omission and not represented by work completed or material delivered. In computation of material cost or expenses sustained, no anticipated profit will be included.
    1. Material paid for shall become the property of the Contracting Authority and shall be disposed of as directed by the Engineer.

1109.06 PARTIAL PAYMENTS

A. If the work extends over a period of more than one month, the Engineer may, upon request from the Contractor, prepare monthly estimates based on the amount of work completed in an acceptable manner.
    1. On contracts for which the contract sum is $10,000.00 or more, monthly estimates may be allowed, based on 90% of invoiced value of processed or fabricated materials which have been delivered on the project site, provided the materials are of acceptable quality and the manner of storage is satisfactory to the Engineer.
    2. The Engineer's monthly estimates shall be partial payments on the contract, and the allowance of a monthly estimate by the Contracting Authority does not constitute final acceptance of the work upon which the estimates are based. Each estimate shall be filed by the Contractor in the form of a claim against the Contracting Authority and certified to by the Engineer on a payment request form supplied by the Contracting Authority.
B. Five percent (5%) of each progress estimate shall be deducted and held as a suspended payment. Payments may be made on the remainder of the progress estimate, except under circumstances which would prejudice the rights of those who have filed claims pursuant to Chapter 573, Code of Iowa.
    1. The retained percentage will not be due and payable for a period of at least 30 days after the date of final acceptance of the entire contract or following the release or adjudication of claims that may have been filed, or until the Contractor has filed the sworn final estimate and sales and use tax statement with the Contracting Authority.

2. Should a reasonable doubt arise as to the integrity of any part of the completed work, the estimate for that portion shall not be allowed until the cause for such doubt has been removed.
3. The progress estimates and payments are approximate only, and shall be subject to correction in the final estimate and payment.

C. Failure to make partial payment within 30 days after receipt and approval of the monthly estimate by the Engineer, will cause interest to accrue and additional payment therefor to be made in accordance with provisions of Chapter 573, Code of Iowa, subject to limitations included therein.

1109.07 SUPPLEMENTAL CONTRACT FOR WORK INTERRUPTED

A. After ninety-five (95%) of the work has been performed to the satisfaction of the Contracting Authority, including consideration of the contract period, and it is apparent that conditions beyond the control of the Contractor will delay the completion of the contract for more than 60 days, the Contractor may request a supplemental contract for the uncompleted portion of work on the same terms as those of the original contract.
   1. If the Contracting Authority agrees, and the surety for the Contractors consents to the extension of the bond for the time required to complete the supplemental contract, the supplemental contact will be issued. After the contract has been entered into, full payment will be made for the work completed, except under circumstances which would prejudice the rights of those who have filed claims pursuant to Chapter 573, Code of Iowa.

B. The unpaid money, held by the Contracting Authority as a retainer of the original contract price, will be due and payable to the Contractor 30 days after the date of the Contracting Authority's approval of the supplemental contract, except as provided for the release and adjudication of claims in 1109.06.

1109.08 CERTIFIED STATEMENT OF SALES TAX AND USE TAX PAID

A. Unless the Contracting Authority has issue an authorization letter and a Sales Tax Exemption Certificate for this project, before final payment can be made on a contract, the Contractor and subcontractors shall file a certified statement on forms provided by the Contracting Authority, showing the amount of Iowa sales tax and use tax paid by them on all materials which have become a component part of the finished, completed contract and on such supplies for this construction as were actually consumed on this work.

B. These statements shall be submitted in duplicate to the Contracting Authority at the completion of the contract.

1109.09 ASSIGNMENT OF MONIES

A. The Contractor shall not assign, by power of attorney or otherwise, any of the monies to become due and payable under this agreement unless the Contractor has received written consent of the Contracting Authority.

1109.10 SUBMITTALS REQUIRED BEFORE FINAL PAYMENT

A. Before final payment can be made on this contract, the Contractor shall submit to the Engineer the following:
   1. A request for prefinal and final payment.
   2. One copy of any guarantees for products incorporated into the work.
   3. Two copies of the operating instructions on each piece of equipment incorporated into the work.
   4. Statements of Sales Tax from the Contractor and subcontractors, unless in receipt of an authorization letter and a Sales tax Exemption Certificate issued by the Contracting Authority for this project.

1109.11 FINAL ACCEPTANCE AND PAYMENT

A. Final acceptance is stipulated to mean a written acceptance by the Contracting Authority. The Contracting Authority shall make final acceptance promptly upon the satisfactory completion of the work. Final payment shall be made as soon as possible following the expiration of statutory time for filing claims, or following adjudication or release of claims against the amount withheld.

B. Failure to make final payment within 70 days after completion of the work, and if all requirements of the contract are completed, will cause interest to accrue and additional payment therefor to be made in accordance with provisions of Chapter 573, Code of Iowa, subject to limitations included therein, however, this provision

shall not apply when final payment includes a supplemental contract for work interrupted, as provided for in 1109.07.

C. Completion of the work will be considered as the date of approval and work acceptance by the Contracting Authority. When interest is to be paid, the date from which interest is to be calculated will be the thirty-first day after all required materials, certifications, and other documentation required to be submitted by the Contractor are received by the Engineer, however, the Contractor will be paid no interest if final payment is made within 70 days from the date of approval and work acceptance. The signed final payment request is not required documentation, but if not returned to the Engineer within 30 days, it will be considered required documentation.

D. Signing of the final payment request or acceptance of payment based thereon, shall not waive any rights of either party in the resolution of any claim filed in accordance with 1109.12.

E. The Contracting Authority shall satisfy itself as to the faithful completion of each part of the work, and may reject any portion found to be inconsistent with the terms of the contract.

1109.12 DISPUTED CLAIMS FOR EXTRA COMPENSATION

A. In any case where the Contractor deems that extra compensation is due for work or material not clearly covered in the contract and not ordered by the Engineer as extra work as defined herein, the Contractor shall notify the Engineer in writing of the intention to make a claim for extra compensation before beginning the work on which the claim is based.

B. The Contracting Authority shall be responsible for damages attributable to the performance, nonperformance, or delay of any other contractor, governmental agency, utility, firm, corporation, or individual authorized to do work on the project, only when such damage is a result from negligence on the part of the Contracting Authority, Engineer, or any of its officers or employees.

1. In any case where the Contractor deems that extra compensation is due from the Contracting Authority as damages resulting from such performances, nonperformances, or delays, the Contractor shall notify the Engineer in writing at the time the delay occurs.

C. In either case if such notification is not given, or if after such notification is given, the Engineer is not afforded facilities for keeping strict account of actual cost, as defined for force-account construction, the Contractor thereby agrees to waive the claim for extra compensation for such work. Such notice by the Contractors and the fact that the Engineer has kept account of the cost as aforesaid, shall not be construed as establishing the validity of the claim.

1. The claims, when filed, shall be in writing and in sufficient detail to permit auditing and evaluation by the Contracting Authority. Claims shall be supported by such documentary evidence as the claimant has available and shall be verified by affidavit of the claimant or other persons having knowledge of the facts.
2. In the event the claimant wishes an opportunity to present the claim in person, then the claim shall be accompanied by a written request to do so.
3. Where the claimant asks an opportunity to present the claim in person, the Contracting Authority, within a reasonable period of time after the filing of the claim, shall fix a time and place for a meeting between the claimant and the Contracting Authority or its designated representatives.
    a. The Contracting Authority shall, within a reasonable time from filing of the claim or the meeting above referred to, whichever is later, rule upon the validity of the claim and notify the claimant in writing, of its ruling together with the reasons therefor. In case the claim is found to be just, in whole or in part, it shall be allowed and paid to the extent so found.

D. The Contractor shall not institute any court action against the Contracting Authority for the adjudication of any claims until such claim has first been presented to Contracting Authority pursuant to this article and submitted to arbitration or a request for arbitration is denied pursuant to 1109.13.

1109.13 ARBITRATION

A. If a Contractor's claim, as outlined in 1109.12, has been disallowed, in whole or in part, then the Contractor may, within 30 days from the date of the ruling of the Engineer is mailed to the Contractor, make a written request to the Engineer that the claim or claims be submitted to a board of arbitration.

1. The Engineer shall decide whether the matter is one which is subject to arbitration and shall, within 30 days of the receipt of the request for arbitration, grant or deny the request.

2. The Engineer's decisions shall be final.

B. Said board of arbitration shall consist of three persons, one to be chosen by the Engineer, one by the Contractor, and the third by the two arbitrators.

C. The arbitrators selected shall be persons experienced and familiar with construction or engineering practices in the general type of work involved in the contract, but shall not have been a regular employee or an individual retained by either party at the time involved in the controversy, or at the time of arbitration.

D. The board of arbitration shall make its own rules of procedure and shall have authority to examine records kept by the Engineer and the Contractor.
   1. If the desired records are not produced within 10 days after they are requested, the board of arbitration shall proceed without them as best it may.
   2. In determining the findings, or awards, or both, the majority vote of the board shall govern. Copies of the findings or awards or both, signed by the arbitrators shall be filed with the Engineer and the Contractor.
   3. A majority report or minority report may be filed. The board of arbitration shall fix the cost of the proceedings, including a reasonable compensation to the arbitrators, and shall determine how the total cost shall be borne.

E. The board of arbitration shall have jurisdiction to pass upon questions involving compensation to the Contractor for work actually performed or materials furnished and upon claims for extra compensation which have not been allowed by the Engineer. Jurisdiction of the board shall not extend to:
   1. A determination of quality of workmanship, or materials furnished, or to an interpretation of the intent of the plans and specifications, except as to matters of compensation.
   2. Setting aside or modifying the terms or requirements of the contract.

F. The findings or awards or both, of the arbitration board, if acceptable to both parties to the contract, may become a basis for final payment.

G. If the findings of the arbitration board are unacceptable to either party to the contract, said findings may become the basis for further negotiations between the parties. If a solution agreeable to both parties has not been reached through the filing of a claims through arbitration, or if arbitration has been denied, either party may resort to whatever other methods for resolving the claim are available.

1109.14 CLAIMS AGAINST CONTRACTOR

A. The Contractor guarantees the payment of all just claims against him/her or any subcontractor, in connection with the work. If another contractor on the project submits a claim for alleged damages caused by delay due to the Contractor not having completed its work in a timely manner, the Contractor's bond shall remain in effect until payment of such claim is made, or until litigation is started, at which time the bond will be released.

1109.15 TIME LIMITS FOR FINAL ADJUSTMENT

A. The Contractor shall understand that the Contracting Authority will not be bound to consider applications for correction of estimates and payments after the Contractor has signed the final estimate, or after 30 days from the date when the final estimate is submitted to the Contractor for approval. Should an error be discovered as a result of the Contractor's annual audit, an application for corrections promptly made will be considered.

1109.16 NATIONAL EMERGENCY PROVISIONS

A. The Contracting Authority may, with written notice, terminate the contract, or a portion thereof, when the Contractor is prevented from proceeding with the construction contract as a direct result of an executive order of the President with respect to the prosecution of war, or in the interest of national defenses as provided in Chapter 573A of the Code of Iowa.

B. When contracts, or any portion thereof, are terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract unit prices or as mutually agreed for items of work partially completed or not started. No claim for loss of anticipated profits shall be considered.
   1. Reimbursement for organization of work (when not included in the contract) and moving equipment to and from the job will be considered where the volume of work completed is too small to compensate the contractor for these expenses under the contract unit prices, the intent being that an equitable settlement will be made with the Contractor.

C. Acceptable materials, obtained by the Contractor for the work, which have been inspected, tested, and accepted by the Engineer, and which are not incorporated into the work, shall be purchased from the Contractor at actual cost, as shown by receipted bills and actual cost records, at such points of delivery as may be designated by the Engineer.
D. Termination of a contract, or a portion thereof, shall not relieve the Contractor of its responsibilities for the completed work, nor shall it relieve the Contractor's surety of its obligation for and concerning any just claims arising out of the work performed.

1109.17 STANDARD CONTRACT CLAUSES

A. Differing site conditions.
   1. During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party, in writing, of the specific differing conditions before they are disturbed and before the affected work is performed.
   2. Upon written notification, the Engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly.
      a. The Engineer will notify the Contractor of his/her determination whether or not an adjustment of the contract is warranted.
   3. No contract adjustment which results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.
   4. No contract adjustment will be allowed under this clause for any effects caused on unchanged work.
B. Suspension of work ordered by the Engineer.
   1. If the performance of all or any portion of the work is suspended or delayed by the Engineer, in writing, for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer, in writing, a request for adjustment within seven (7) calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.
   2. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or Subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment, excluding profit, and modify the contract in writing accordingly.
      a. The Engineer will notify the Contractor of his/her determination, whether or not an adjustment of the contract is warranted.
   3. No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.
   4. No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.
C. Significant changes in the character of work.
   1. The Engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work, as are necessary to satisfactorily complete the project.
   a. Such changes in quantities and alternations shall not invalidate the contract nor release the Surety, and the Contractor agrees to perform the work as altered.
   2. If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any anticipated profits, adjustments will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If such a basis cannot be agreed

upon, an adjustment will be made either for or against the Contractor in such amount as the engineer may determine to be fair and equitable.

3. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contracts the altered work will be paid for as provided elsewhere in the contract.
4. The term “significant change” shall be construed to apply only to the following circumstances:
    a. When the character of the work as altered, differs materially in kind or nature from that involved or included in the original proposed construction or;
    b. When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity, any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work.

1109.18 INTEREST PAYMENTS

A. Interest on monthly payment estimates.
    1. Interests shall be paid to the Contractor on any progress payment approved by the Engineer under paragraph A of paragraph 1109.06 of these General Covenants and Provisions, which remains unpaid after thirty (30) days of the receipt by the Contracting Authority.
        a. Receipt by the Contracting Authority shall be defined as the date the Contracting Authority’s central office mail staff receives the progress payment request and stamp it. All progress payment requests which are delivered directly to the central office by the Contractor or the Inspector of the Contracting Authority shall have a date of receipt entered by the mail room staff.
        b. Interest shall accrue on the 31st day after receipt by the Contracting Authority, if approved by the Engineer, and shall end on the date the warrant is issued by the Iowa Department of Revenue. The rate of interest shall be the same as the rate of interest in effect under 453.6 of the Iowa Code, as the date interest begin to accrue.
B. Interest on retainage.
    1. Interest shall be paid on any retained funds held under paragraph B of section 1109.06 of these General Covenants and Provisions. Interest shall be paid as outlined in Iowa Administrative Code section 561, Chapter 8.7.

END OF SECTION 00700

SECTION 00710
(Revised 9/8/95)

SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES

Notice of Requirements for Affirmative Action to ensure Equal Employment Opportunity (Executive Order 11246 as amended) and Iowa Executive Orders 15 and 34. This includes employment goals for minorities and women in construction.

60-1.4 EQUAL OPPORTUNITY CLAUSE.

A. Federally assisted construction contracts.

1. Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause.

B. The applicant hereby agrees that it will 1ncorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loans insurance, or guarantee, the following equal opportunity clause:

C. During the performance of this contracts the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee, or applicant for employment because of race, colors, religion, sex, national origin, or disability.

a. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following; Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

b. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, national origin, or disability.

3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

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

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

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labors or as otherwise provided by law.

7. The Contractor will include the portion of the sentence immediately preceding paragraph 1. and the provisions of paragraphs 1-7 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the

Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor.

a. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

b. Provided, however, that in the event a Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

I. DEFINITIONS.

A. Definitions as used in these specifications:

1. **Covered Area** means the entire State of Iowa, however, those areas of a Hometown Plan approved by the US Department of Labor will be considered separately.

2. **Director** means Director, Office of Federal Contract Compliance Program, United States Department of Labor or any person to whom the Director delegates authority.

3. **Employer Identification Number** means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Returns US, Treasury Department Form 941.

4. **Designated Geographical Areas**.

a. **Standard Metropolitan Statistical Area (SMSA)**. These areas represent a reasoned judgement as to how metropolitan areas are defined statistically in a uniform manner, using data items that are:

1) widely recognized as indicative or metropolitan character, (population, urban character, nonagricultural employment, population, density, and commuting ties), and

2) available from a body of Federal statistics which has been uniformly and simultaneously collected in all parts of the country, and processed and tabulated according to consistent standards. Thus, if a project is located within an SMSA, it can be concluded that a reasonable commuting area exists within the SMSA, and that goals based on SMSA statistics are accurate.

b. **Economic Area (EA).** These areas are viewed as centers of commerce, and they generally cover areas which include the places of work and residence for most workers. There are 183 such areas, defined along county lines, covering the entire country. Counties were assigned to these economic areas in accordance with commuting patterns based primarily on data gathered by the Bureau of the Census.

5. **Minority** includes:

a. **Black** (all persons having origins in any of the Black African racial groups not of Hispanic origin);

b. **Hispanic** (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish Culture or origin, regardless of race),

c. **Asian and Pacific I slander** (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands), and

d. **American Indian or Alaskan Native** (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(Note: Minority women from the above referenced groups shall be counted as satisfying both the minority and female employment goals in each geographic area.)

II. GENERAL.

A. Equal Employment Opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375. The requirements set forth in this specification shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.

III. EQUAL OPPORTUNITY POLICY.

A. The Contractor will accept as his/her operating policy the following statement which is designed to farther the

provision of equal employment opportunity to all persons without regard to their age, race, color, religion, sex, national origin, or disability, and to promote the full realization of equal employment opportunity through a positive, continuing program.

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their age, race, religion, sex, color, national origin, or disability. Such action shall include: employment, upgrading, demotion, and transfer, recruitment and recruitment advertising, layoff, and termination, rates of pay and other forms of compensation, and selection of training, including apprenticeship, preapprenticeship, and/or on-the-job training."

IV. GOALS.

A. Specific goals for female and minority participation have been established.

B. The goals for female participation, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, is 6.9 percent, with no timetable. This goal applies nationwide.

1. Goals for minority participation in Iowa, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, are shown on the map of Iowa that follows. The goals shown apply to each designated geographical area, as shown on the map.

C. These goals are applicable to all the Contractor's construction work (whether or not it is non-Federal or Federally assisted) performed in the designated area. For each contract and/or subcontract in excess of $10,000, the goals for minority participation will apply for all work to be performed in geographical areas designated by the Director pursuant to 41 CFR 60-4.6, and the goal for female participation will apply nationwide.

1. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on his/her implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and his/her efforts to meet the goals established for minority participation for the geographical area where the work is to be performed, or nationwide goal for female participation.

2. The hours of minority and female employment and training must be substantially uniform throughout the time period for the work of the contracts and within each trade, and the Contractor shall make a good-faith effort to employ minorities and women evenly on each of his/her projects.

3. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Orders and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

D. The Contractor shall provide written notification to the Department of Natural Resources (on behalf of the Director of the Office of Federal Contract Compliance Programs) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under this contract.

1. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontracts and the geographical area in which the contract work is to be performed.

E. Application of M inority Participation Goals.

1. **Minority Participation.** A single minority participation goal is established for each SMSA and EA. Timetables for the achievement of minority goals are not provided. A separate goal is established for each SMSA and for each EA. When a contract or subcontract to which this specification applies is for work located within a SMSA, the goal for what SMSA applies. When a contract or subcontract to which this specification applies is for work located outside an SMSA, the goal for that EA applies.

a. The applicable goal for the Contractor or subcontractors is the goal for each geographical area where the work is being performed, and all the work of the Federal or Federally assisted construction contractor or subcontractor is covered, whether the work is being performed for a contract to which the specification applies or not. Therefore, a contractor with work in SMSA "X" would apply the goal for

SMSA “X” for that work. The same contractors however, would apply the SMSA “Y” goal to all his/her work in SMSA “Y”, even though the Contractor’s work in SMSA “Y” is neither Federal nor Federally assisted.

2. **Participation of Minority Women.** The Contractor and required subcontractors will be permitted to count minority women belonging to one of the recognized minority groups listed in Article I of this specification as satisfying both the minority goal for each designated geographic area and the overall female goals. Conversely, nonminority women will only count toward satisfying the overall female goal.

V. STANDARD FEDERAL EQUAL EM PLOYM ENT OPPORTUNITY CONSTRUCTI ON CONTRACT SPECI FICATIONS (EXECUTIVE ORDER 11246).

A. Whenever the Contractors or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, he/she shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation set forth herein.

B. If the Contractor is participating (pursuant to 41 CFR 60-4.5) In a Hometown Plan approved by the US Department of Labor in the covered area either individually or through an association, his/her affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.

1. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with his/her obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which he/she has employees.
2. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor’s or subcontractor’s failure to make good faith efforts to achieve the Plan goals and timetables.

C. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6a through p. Article V, of these specifications. The goals set forth in the specifications are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which he/she has employees in the covered area. The Contractor is expected to make substantially uniform progress toward his/her goals in each craft during the period specified.

D. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor’s obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

E. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training program, approved by U.S. Department of Labor.

F. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluations of the Contractor’s compliance with these specifications shall be based upon his/her effort to achieve maximum results form his/her actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

1. Endure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor’s employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project.
   a. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of, and carry out, the Contractor’s obligations to maintain such a working environments with specific attention to minority or female individuals working at such sites or such facilities.

2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
3. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the- street applicant and minority or female referral form a union, a recruitment source, or community organization, and of what action was taken with respect to each such individual.
   a. If such individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

4. Provide immediate written notification to the Director, when the union or unions with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his/her obligations.
5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. Training programs may be specifically required elsewhere in the contract documents. The Contractor's responsibility for training opportunities is not necessarily limited to training programs that are specifically required. The Contractor shall provide notice of these programs to the sources compiled under 6b above.
6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting his/her EEO obligations, by including it in any policy manual and collective bargaining agreement, by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees, at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions, including specific review of these items with on-site supervisory personnel, such as superintendents, general foremen, etc. , prior to the initiation of construction work at any job site. A written record shall be made and maintained, identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to, and discussion the Contractor's EEO policy, with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
9. Direct the Contractor's recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after schools summer, and vacation employment to minority and female youths both on the site and in other areas of the Contractor's workforce.
11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
12. Conduct, at least annually, an inventory and evaluation, of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
13. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not

have a discriminatory effect, by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractor and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
16. Conduct a reviews at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

G. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6a through p).

1. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of the obligations under 6a through p of these specifications, provided the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet his/her individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor.
2. The obligation to comply, however, is the Contractor's, and failure of such group to fulfill an obligation shall not be a defense for the Contractor's noncompliance

H. A single overall goal for women and goals for minorities in each designated area are included in Article IV of these specifications. The Contractor is required to provide equal opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved the goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group or women are underutilized.

I. The Contractor shall not use the goal, or affirmative action standards to discriminate against any person because of age, race, color, religion, sex, national origin, or disability.

J. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts, pursuant to Executive Order 11246.

K. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

L. The Contractors in fulfilling his/her obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph G of these specifications, so as to achieve maximum results from his/her efforts to endure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

M. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records.

1. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed.
2. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, Contractor shall not be required to maintain separate records.

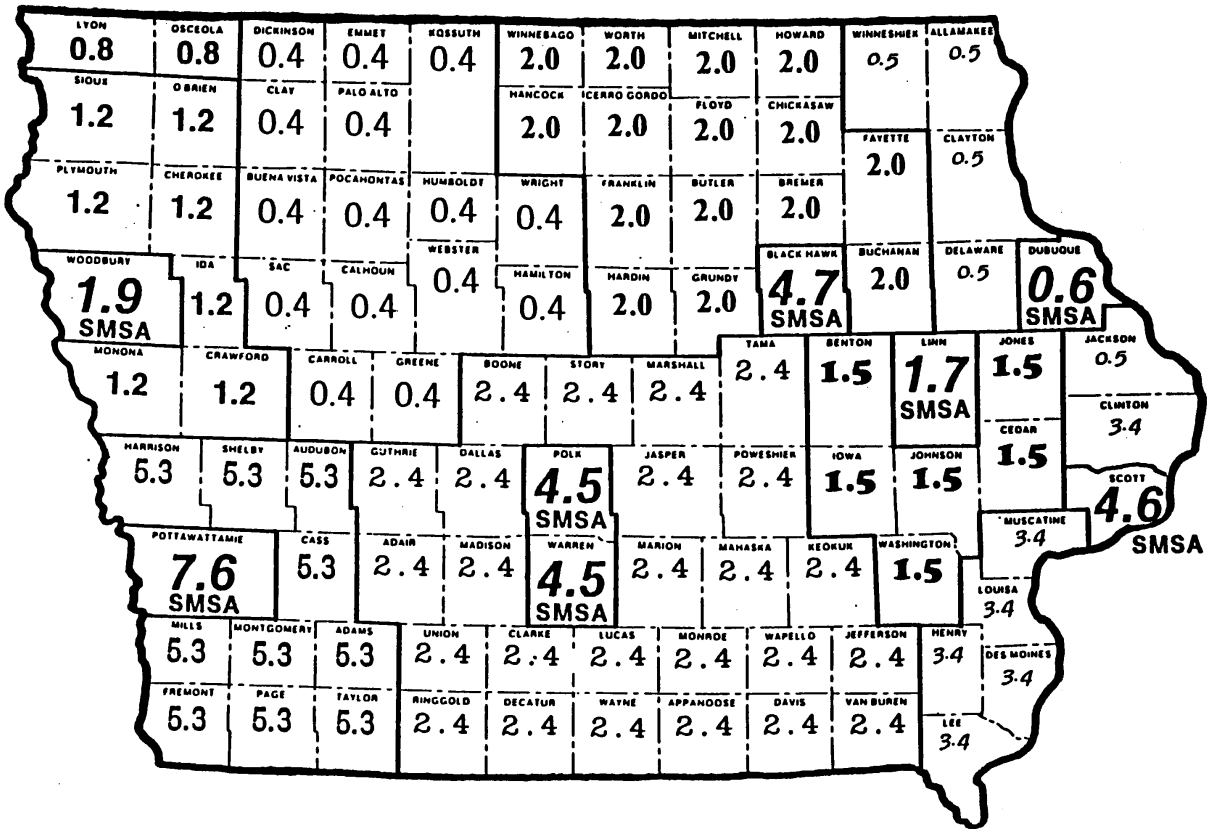
N. Nothing herein provided shall be construed as a limitation upon the application of other Iowa which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

VI. SUPPLEM ENTAL REPORTING REQUIREM ENTS.

A. The Contractor and subcontractors are required to make available upon request its Affirmative Action Program containing goals and time specifications. These contractual provisions shall be fully enforced. Any breach of the provisions shall be regarded as a material breach of contract.

B. The Contractor will keep such records as are necessary to determine compliance with equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate the number of minority and nonminority group members and women employed in each work classification on the project. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department of Natural Resources and any Federal Agency funding any part of this project.

"Minority employment goals are expressed as a percentage (%) of total hours worked for each craft and/or trade in each county."



PART 0 - GENERAL

0.01 RELATED DOCUMENTS

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

0.01 GENERAL

A. The General Conditions of the contract are the General Covenants and Provisions bound within.
   1. These General Covenants and Provisions are herein modified or supplemented by this Supplementary Covenant and Provisions.
   2. Articles of the General Covenant and Provision not directly affected by this section remains in full force as written, unless exceeded in requirements herein or elsewhere in these Specifications.

0.03 DEFINITION OF TERMS

A. Article 1100.03 “Definition of Terms” is supplemented and modified as follows:
   1. General: A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including Drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to the extent not stated more explicitly in another provision of Contract Documents.
   2. Imperative Language: Used generally in Specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at certain locations, contrasting subjective language is used to describe responsibilities, which must be fulfilled indirectly by Contractor, or when so noted, by others.
   3. Bureau Chief: The individual appointed by the Iowa Department of Natural Resources as the head of the Land and Waters bureau.
   4. DNR Construction Inspector: The Department of Natural Resources Construction Inspector will be the direct representative of the department at the project location with the authority to verify compliance with the provisions of each and all divisions of this Project Manual. Contact the DNR Construction Inspector regarding questions on site review, inspections and project coordination.
   5. Procurement Supervisor: The Procurement Supervisor will answer all questions regarding Bidding and Contract Procedures.
   6. General Requirements: The provisions of requirements of Division-1 sections. General requirements apply to entire work of Contract and, where so indicated, to other elements which are included in project.
   7. Indicated: The term “indicated” is a cross-reference to details, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as “shown,” “noted,” “scheduled,” and “specified” are used in lieu of “indicated,” it is for the purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
   8. Directed, Requested,...,: Where not otherwise explained, terms such as “directed,” “requested,” “authorized,” “selected,” “directed by Engineer,” “requested by Engineer,” etc. However, no such implied meaning will be interpreted to extend Engineer’s responsibility into Contractor’s area of construction supervision.
   9. Approve: Where used in conjunction with Engineer’s response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term “approved,” will be held to limitations of Engineer’s responsibilities and duties as specified in General Covenants and Provisions and Supplementary Covenants and Provisions. In no case will “approval” by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.
   10. Project Site: The space available to Contractor for performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of project site is shown on Drawings, and may or may not be identical with description of land upon which project is to be built.
   11. Furnish: Except as otherwise defined in greater detail, the term “furnish” is used to mean supply and deliver

to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

12. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.
13. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
14. Installer: The entity (person, firm...) engaged by the Contractor or its subcontractor or sub-subcontractor for performance of a particular unit of work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in portions of the work they are to accomplish.

PART 1 - INSTRUCTIONS TO BIDDERS

1.01 GENERAL

A. Article 1101.101 "General" is supplemented and modified as follows: Add:

F. All Bidders must complete and return Form 5700-49 with their bids (See 00310).

1.02 DRAWINGS AND SPECIFICATIONS

A. Article 1101.02 "Drawings and Specifications" is supplemented and modified as follows:
   1. The Drawings and Specifications which are enumerated in the Index of drawings and Table of Content of this project manual are part of this contract.

1.07 ESTIMATE OF QUANTITIES

A. Article 1101.07 "Estimate of Quantities" is supplemented and modified as follows:
   1. Estimated quantities are minimum quantities required. Bidding contractors shall determine their own quantities as required to complete the work to provide a total bid for a complete and proper project.

1.14 AWARD OF THE CONTRACT

A. Article 1101.14 "Award of the Contract" is supplemented and modified as follows: Delete paragraph B and C and replace with the following:
B. The Department of Natural Resources Reserves the right to reject all bids or any proposal or to waive informalities in any proposal or to accept any proposal which will best serve the interests of the program for which Federal assistance is awarded.
C. If, at the time this contract is to be awarded, the lowest proposal submitted by a qualified, responsible bidder is in the best interest of the program, the contract will be awarded, and the bidder to whom the award is made will be promptly notified after the Department of Natural Resources meeting.

PART 4 - SCOPE OF WORK

4.03 INCREASED OR DECREASED QUANTITIES

A. Article 1104.03 "Increased or Decreased Quantities" is supplemented or modified as follows:
   1. The Contractor shall be responsible for furnishing all labor, equipment and material necessary to complete all the work required for this project. There will be no additional compensation for any increases of quantities determined to be necessary by the Engineer/DNR Construction Inspector to accomplish the intent of these contract documents.

4.10 PERMITS AND ARRANGEMENTS WITH OTHER GOVERNMENTAL AGENCIES

A. Article 1104.10 "Permits and Arrangements with Other Governmental Agencies" is supplemented and modified as follows:
   1. Contractor shall take out and pay for any building permit which may be required, secure and pay for all permits, certificates and licenses required to prosecute the work, and shall arrange for and pay for all inspections required by local authorities.
   2. Apply and pay for NPDES Stormwater Discharge Permit (DNR's General Permit No. 2) for Construction Operation, as required by EPA regulations dated March 10, 2003, for any land-disturbing activity which will

disturb an area of one or more acres, with the Iowa DNR.

a. Permits are available from the DNR Storm Water Coordinator, 502 E 9th St, Des Moines Iowa, 50319. (Tel. (515) 725-8417)

4.13 DRAWINGS AND SPECIFICATIONS

A. Article 1104.13 "Drawings and Specifications" is supplemented and modified as follows:

1. The Contractor shall be responsible for distributing to all involved in this project, Drawings and Specifications in quantities reasonably necessary for the completion of the portion of work they are responsible for. No additional payment will be made for shortcomings resulting from misunderstanding of Contract Documents due to any shortage of information between General Contractor, Subcontractors, and Material Suppliers.

4.14 THE CONTRACTING AUTHORITY'S RIGHT TO OCCUPY

A. Article 1104.14 "The Contracting Authority's Right to Occupy" is supplemented and modified as follows: Add:

B. Personnel of the Iowa Department of Natural Resources, the assisting Federal Agency, and the Iowa Department of Economic Development shall be allowed access to all area of the work site as required for the performance of their official duties.

4.15 CONSTRUCTION STAKES AND BENCH MARKS

A. Article 1105.07 "Construction Stakes and Bench Marks" is supplemented and modified as follows:

1. The Contractor will be responsible for setting the necessary stakes to establish centerlines, slopes, alignment, grade and other stakes as required for construction.
2. The Contractor shall assume full responsibility for the accuracy and correctness thereof.

PART 6 - CONTROL OF MATERIALS

6.03 SAMPLES AND TESTS

A. Article 1106.03 "Samples and Tests" is supplemented and modified as follows:

1. All testing required by the contract documents or the DNR Construction Inspector shall be considered a part of the Contract and shall be paid for by the Contractor.

PART 7 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

7.05 FEDERAL PARTICIPATION

A. Article 1107.05 "Federal Participation" is supplemented and modified as follows: Add:

B. If the project involves federal assistance, comply with the following requirements.

1. Debarment and Suspension:
   a. **All Bidders must complete and return Form 5700-49 along with their bid.**
   On all federally assisted contracts and subcontracts in excess of $25,000.00, any bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Nonprocurement Programs will be prohibited from submitting a bid who is listed in this publication will be determined to be a nonresponsive bidder.

2. Violation Facilities: On all federally assisted contracts and subcontracts in excess of $100,000.00, the Contractor shall comply with all applicable standards, orders or requirements issued under section 306 of the Clean Air Act (42 U. S. C. 1857(h)), section 5O8 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and EPA regulations (40 C.F.R. Part 15) which prohibit the use under nonexempt Federal contracts, grants or loans, of facilities included on the EPA List of Violating Facilities.
3. Energy Efficiency: On all federally assisted contract and subcontracts, the Contractor shall comply with mandatory standards and policies on energy efficiency contained in the State's energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163).
4. Where federal assistance for a project involving construction is received, comply with the following additional requirements:
   a. The Copeland Act: The Copeland (Anti-Kickback) Act, and the regulations of the Department of Labor under 29 CFR Part 3 prohibit Contractors and Subcontractors from inducing any person involved in your

project to give up any part of the compensation to which that person is entitled under an employment contract.

b. The Contract Work Hours and Safety Standards Act: The Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.) and the regulations for the Department of Labor under 29 CFR Part 5 require Contractors and Subcontractors to pay wages to laborers and mechanics on the basis of an eight hour work day and 40 hour work week and to pay at least time-and-a-half for work performed in excess of these time limitations. Also, the Act prohibits your contractors and subcontractors from requiring laborers and mechanics to work in hazardous, unsanitary, or dangerous conditions (see 29 CFR Part 1926).

c. Convict labor: You may not use convict labor unless the convicts are on work release, parole, or probation (see 18 U.S.C. 436).

5. Minority Business Enterprise/Women's Business Enterprise: Each contractor must fully comply with the requirements, terms, conditions of the Environmental Protection Agency's policy to award a fair share of subagreements to minority and women's businesses. The description of the affirmative steps to be taken are attached (See Region VII Procedures for Implementation of 40 CFR Part 33.240 attached).
6. Anti-Lobbying Act of 1990: The contractor which is awarded the low bid for a federally assisted contract and subcontract in excess of $100,000.00, will need to complete the attached certification (See Recipient Certification - Anti-Lobbying Act of 1990).

C. Additional Requirements under DNR Federal Grant Agreements regarding Termination of Contracts: Where construction contracts are being funded in whole or in parts by federal government monies, the following shall apply:

1. Termination for Cause: The Department may terminate this Contract in whole or in part, at any time before the expiration date, whenever the Department has determined that the Contractor has materially failed to comply with the conditions of the Contract.
   a. The Department shall promptly notify the Contractor in writing of the determination and reasons for the termination, together with the effective date.
   b. Payments made to the Contractor or recoveries by the Department under Contract terminated for cause shall be in accord with the legal rights and liabilities of the parties.

2. Termination for Convenience: The Department or the Contractor may terminate the Contract in whole or in part when both parties agree that continuation of the Contract would not produce beneficial results commensurate with future expenditure of funds.
   a. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination, the portion to be terminated.
   b. The Contractor shall not incur new obligations for the terminated portion after the effective date and shall cancel as many outstanding obligations as possible.
   c. The Contractor shall prepare and deliver to the Department copies of the final report summarizing the work performed and the results obtained to date.

E. Records:

1. Access to Records: The Department, the Federal Grantor Agency, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to any books, documents, papers, and records of the Contractor which are directly pertinent to this Contract for the purpose of making audit, examination, excerpts and transcription.
2. Retention of Records: All records in the possession of the Contractor pertaining to this Contract shall be retained by the Contractor for a period of three (3) years beginning with the date upon which the final payment under this Contract is issued.

PART 9 - MEASUREMENT AND PAYMENTS

9.01 MEASUREMENT OF QUANTITIES

A. Article 1109.01 "Measurement of Quantities" is supplemented and modified as follows:

1. For the purpose of this project, Contract Quantities will be quantities determined by Contractor and submitted to Engineer as price breakdown within 30 days after the award of contract.

9.03 ADJUSTMENT IN CONTRACT PRICE

A. Article 1109.03 "Adjustment in Contract Price" is supplemented and modified as follows:
   1. No adjustment in contract price shall be made unless the increase or decrease of quantity is due to an alteration of Contract Documents after the Contract is awarded.
   2. Changes in contract resulting in a decrease in the Scope of the Work shall be computed on the basis of Contractor's price breakdown, and rebated to the Contracting Authority.
   3. Additional work determined to be necessary but not covered by the Contract shall be computed on the basis of the price breakdown or as outlined in 1109.04, as applicable, and paid for by the Owner.

9.10 SUBMITTAL REQUIRED BEFORE FINAL PAYMENT

A. Article 1109.10 "Submittals Required Before Final Payment" is supplemented and modified as follows:
   1. Submit to the Engineer or the DNR Construction Inspector all submittals required in Section 01300 before final payment can be made, unless otherwise specified.
   2. Other submittals may be required in other sections.

END OF SECTION 00811A

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions, and General Requirements.

1.02 GENERAL:

A. Special Condition:

1. Build America, Buy America Act:

This project shall comply with section 70914 of the Infrastructure Investment and Jobs Act, Public Law Number 117-58, which includes the Build America, Buy America Act. Section 70914 of this act requires the following Buy America Preference:

a. All iron and steel used in the project are produced in the United States. This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
b. All manufactured products used in the project are produced in the United States. This means the manufactured product was manufactured in the United States, and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation.
c. All construction materials are manufactured in the United States. This means that all manufacturing processes for the construction material occurred in the United States.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project, but are not an integral part of or permanently affixed to the structure.

Any waivers from these requirements must be in writing and meet the requirements of section 70914(b) of the Build America, Buy America Act.

The fabricator/supplier of all iron, steel, manufactured products, and construction materials shall provide a letter certifying all of the materials are in compliance the Build America, Buy America Act, and the necessary supporting documentation will be retained by the fabricator/supplier for a minimum of seven years from the time the products are shipped for incorporation into the project.

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions and the Supplementary Covenants and Provisions.

1.02 SUMMARY OF WORK:

A. Work Covered by Contract Documents:
   1. Name of the project is “Exterior Masonry and Structural Repairs”, Project Number 24-03-96-01. Drawings and Specifications are dated December 2023.
   2. Briefly and without force and effect upon contract documents, work of the contract can be summarized as follows:
      a. Ft Atkinson State Preserve is a historic fort built in the 1840s in Winneshiek County, IA. Occupied for only a short time for its original intent, it now serves as a historic landmark and interpretive location. As this location has aged there have been multiple attempts at salvaging, shoring, and restoring the fort for future interpretation. This project will address ongoing water intrusion, deteriorating wood and masonry, and shore up structural deficiencies allowed within the budget.

B. Occupancy:
   1. Owner: The DNR shall have the right to enter the building or work site and store or attach such fixtures or furniture as it may elect, or to do other work providing that such storage or work will not interfere with the completion of the Contractor’s work. Such occupancy by the DNR shall in no way imply final acceptance of any portion of the Contractor’s work.

1.04 MEASUREMENT AND PAYMENTS:

A. Measurements and payments shall be in accordance with Section 01250 of these specifications.

B. Before ordering any fabricated material or doing any work, verify all measurements at the project site. No additional compensation will be allowed because of difference between actual dimensions and the measurements indicated on the drawings. Report any difference immediately to the DNR for instructions before proceeding with the work.

1.06 COORDINATION:

A. Project Coordination:
   1. Take out and pay for any building permit which may be required, secure and pay for all permits, certificates and licenses required to prosecute the work, and arrange and pay for all inspections required by local authorities.
   2. Visit the site, compare the Drawings and Specifications with any work in place, and verify all conditions, including other work, if any, being performed. Failure to visit the site will in no way relieve the Contractor from necessity of furnishing any materials or performing any work that may be required in accordance with Drawings and Specifications.

B. Job Site Administration: Take complete charge of work under this contract. Coordinate the work of all trades and all phases of general, structural, plumbing, mechanical, and electrical work.

1.07 FIELD ENGINEERING:

A. Provide such field engineering services as are required for a proper completion of the work.
   1. Immediately upon entering project site for the purpose of beginning work:
      a. Establish actual project location, set back and side yards, if any, with the DNR Construction Inspector.
      b. Establish and maintain all lines and levels.

B. Additional requirements for field engineering may also be described in other sections of these specifications.

C. Verify all figures shown on Drawings before laying out work and report all discrepancies to the DNR Construction Inspector. Contractor will be held responsible for any error resulting from failure to do so.

1.09 ABBREVIATIONS AND SYMBOLS:

A. Reference to a technical society, institution, association, or government authority is made in the Specifications in accordance with the following abbreviations:

AAMA	Architectural Aluminum Manufacturers Association
AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
AIA	American Institute of Project Engineers
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALS	American Lumber Standards
APA	American Plywood Association
ATI	Asphalt Tile Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Project Architectural Wood Work Institute
AWPA	American Wood Preservers' Association
AWS	American Welding Society
CS	Commercial Standard, U.S. Department of Commerce
FGJA	Flat Glass Jobbers Association
FS	Federal Specification
GA	Gypsum Association
IES	Illuminating Engineering Society
MIA	Marble Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specification
MSTD	Military Standard
NAAMM	National Association of Metal Manufacturers, The
NHLA	National Hardwood Lumber Association
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NEC	National Electric Code of NBFU
NFPA	National Fire Protection Association
NLMA	National Lumber Manufacturers Association
NTMA	National Terrazzo and Mosaic Association, Inc.,
NWMA	National Woodwork Manufacturers Association
SDI	Steel Deck Institute
SSPC	Steel Structures Painting Council
SCPI	Structural Clay Products Institute
SPR	Simplified Practice Recommendations, U.S. Department of Commerce
TCA	Tile Council of America
UL	Underwriters' Laboratories, Inc.
USA	United States of America Standards Association

1.13 PROJECT MEETINGS:

A. Preconstruction Conference: Soon after award of contract and prior to the start of construction, attend a preconstruction conference with the representative of the Owner to define the requirements for contract administration and construction operation.
   1. Contact the DNR Construction Inspector who will determine the time, date and place of the conference.

B. Progress Meetings: The Contractor or the Contractor's representative shall be available at the job site to meet with the DNR Construction Inspector, as frequently and as arranged during the preconstruction conference, to discuss work progress.
   1. Give verbal report of progress, discuss work schedule, and present all conflicts, discrepancies and other difficulties for resolution.

1.16 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS:

A. Definitions: Specific administrative and procedural minimum actions are specified in this section, as extension of provisions in other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Project Engineer that such temporary activity is not required for successful completion of the work and compliance with contract documents.

B. General: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have replaced the need.

C. Temporary Utilities: The types of services required may include, but not by way of limitation, water, sewerage, surface drainage, electrical power and telephones. Where possible and reasonable, connect to existing franchised utilities for required services; comply with service companies recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
   1. Sanitary Facilities:
      a. Temporary Toilets: When such or permanent facilities do not exist, provide and maintain toilets for use by workers. Keep toilets in sanitary condition.
      b. Temporary toilet facilities shall meet OSHA requirements.

D. Security:
   1. Protection of Work and Property:
      a. Place and maintain such barricades as may be necessary to prevent public access to the project site at no cost to the Owner.

E. Options and Substitutions:
   1. Bid shall include all equipment, materials, and services as specified, noted on the Drawings or required for a complete and proper installation.

1.19 CONTRACT CLOSEOUT:

A. Final Cleaning:
   1. Remove waste material and rubbish caused by the Work and leave all work clean and free of debris of any kind.
   2. Keep the site and access road reasonably clean and free of rubbish or waste material in order that the work may progress efficiently. Remove such rubbish or waste material entirely from the premises at each time of such cleaning.
   3. When the Work is completed and ready to turn over to the Owner, leave such work clean. This applies to all areas affected by contract work.
   4. On completion of the Work, thoroughly police and clean-up the premises surrounding the building.

B. Final Inspection:
   1. Request a final inspection in writing, at least ten days prior to the anticipated date of completion, from the DNR Construction Inspector.
   2. Work will not be considered ready for final inspection until all the work has been completed and the Contractor has certified that all items are properly operating and in strict compliance with the Contract Documents.
   3. The Contractor or project supervisor shall be at the job site during the final inspection.
   4. After the inspection, the DNR Construction Inspector will present the Contractor a list of items not meeting contract requirements which must be made acceptable before final payment is made.

END OF SECTION 01000

Section 01030
ALTERNATES/ALTERNATIVES

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes: General requirements pertaining to:
   1. The Work specified for accepted alternate bids, the materials and methods referenced in other sections to achieve specified work, and the coordination and modification of related work and surrounding construction to complete the project under each accepted bid.

B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 DESCRIPTION OF ALTERNATE BIDS:

A. Base Bid: Provide a total Bid for Bid Items #1 and 2
   1. North Barracks Restoration
   2. Northeast Blockhouse Restoration

B. Alternate Bid No. 1: Flooring Repairs at North Barracks

C. Alternate Bid No. 2: Subsurface Drainage - North Barracks and Southwest Blockhouse

D. Alternate Bid No. 3: Window and Door Flashing at North Barracks

E. Alternate Bid No. 4: Window / Door Infill and Flashing at North Barracks

F. Alternate Bid No. 5: Southwest Blockhouse Restoration

G. Alternate Bid No. 6: Powder Magazine Restoration

1.03 ALTERNATE BID REQUIREMENTS:

A. Bidder must submit alternate bids. Bids submitted without alternate bid will be rejected as unresponsive.

B. Alternate bids, if awarded, will be considered as a basis for award. The low bid will be analyzed on the base bid and any combination of alternate bids. The Owner reserves the right to award the base bid and all alternates, that in the Owner's opinion, will provide the most cost-effective end product. The Owner's decision is final.

C. Provide alternate bid for the cost of the service requested in each alternate, either as an addition or as a reduction in the total bid.

D. The Owner may award any alternate bid or bids at the time of contract award. Any alternate bids awarded as part of the original contract will not extend the project completion time beyond that specified.

END OF SECTION 01030

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 DESCRIPTION OF WORK:

A. Provide such field engineering services as are required for proper completion of the work including, but not necessarily limited to:
   1. Establishing and maintaining lines and levels;
   2. Structural design of shores, forms, and similar items provided as part of the Contractor's means and methods of construction;
   3. Establishing finish grade stakes (including blue tops) as necessary;

B. Additional requirements for field engineering may also be described in other sections of these specifications.

1.03 REFERENCES:

A. Refer to Section 1105.07 "Construction Stakes and Bench Marks" of the General Covenants and Provisions for assignment of responsibilities for the Owner and Contractor.

1.04 SUBMITTALS:

A. Comply with pertinent provisions of Section 01300, if applicable.

1.05 PROCEDURES:

A. In addition to procedure directed by the Contractor for proper performance of the Contractor's responsibilities:
   1. Locate and protect control points before starting work on the site.
   2. Preserve permanent reference points during progress of the work.
   3. Do not change or relocate reference points or items of the work without specific approval from the DNR Construction Inspector.
   4. Promptly advise the DNR Construction Inspector of a lost, destroyed, or reference point-requiring relocation due to other changes in the work.
      a. When directed by the DNR Construction Inspector, replace referenced stakes at no additional cost to the Owner.

B. Meet with DNR Construction Inspector to establish actual building location, set backs, and side yards, if required.

END OF SECTION 01050

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 LUMP SUM / UNIT PRICE BID:

A. Bid each item on a Unit Price basis or Lump Sum basis as required, including furnishing all labor, equipment and materials necessary to complete all the work indicated in the Contract Documents.

1.03 QUANTITIES:

A. Various estimated quantities are furnished within the Contract Documents to assist the Contractor in reviewing the Project prior to bidding. The estimated quantities are not intended to be used by the Contractor as sole basis for determining the scope and volume of the work. The Contractor is responsible for verifying all quantities necessary to submit bids for the construction of a proper and complete project.

1.04 MEASUREMENT:

A. The contractor is responsible for constructing the project to the final lines and grades shown. Owner will measure construction units only to ensure that at least minimum quantities have been properly installed.

1.05 SCOPE:

A. Each item in the Bidder's Proposal Schedule of Prices will be paid at the unit or lump sum price. The price for each item shall be considered full compensation for furnishing superintendence, overhead, bonds, insurance, mobilization, testing and profit necessary to complete the construction of the item of the project listed in the Bidder's Proposal.

B. It is not the intent of the Bidder's Proposal to itemize each and every item and system required. Items required for project completion and not specifically mentioned in Bidder's Proposal shall be included with items which they would be considered subsidiary.

1.06 ESTIMATED QUANTITIES:

A. The items and quantities described above, as well as others listed throughout the Contract Documents, are provided for the bidder's review and consideration. The quantities listed herein are not guaranteed by the owner or the Project Engineer to be totally accurate nor to include all items of work. They are provided for the bidder's convenience to assist in the preparation of the bid. The bidder is responsible for preparing his own quantity takeoff and bid preparation.

END OF SECTION 01250

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SUMMARY:

A. Provide submittals required in this Section, refer to technical specification for submittal requirements for each section of the work to be performed.

1.03 PROGRESS SCHEDULE:

A. Submit a project schedule to the Project Engineer for approval within 30 days after award of contract, but not later than the contract start date. The type of schedule required is at Contractor's option.
B. Prepare an approved, reproducible form and include the following:
   1. Breakdown of work activities in categories so approved and segmented as necessary to allow close monitoring of progress of the work during construction.
   2. Order of the work necessary to meet time for completion.
   3. Breakdown of the work schedule of all subcontractors scheduled in cooperation with Contractor's work.
   4. Anticipated monthly value for work completed.
   5. Space for the additional display of actual performance on the schedule.
C. After necessary revisions have been made and approved, present one print of schedule to each subcontractor and three copies to the Owner.
D. Upon request, update the schedule to reflect changes required by actual conditions and indicate actual work completed. Provide same number of copies as required for original submission.
E. Payment will be withheld until progress schedule in acceptable form has been received by Project Engineer.

1.04 PRICE BREAKDOWN:

A. Within 30 days after award of contract, but not later than the contract start date, submit to the Project Engineer for approval a price breakdown of major lump sum bid items into smaller components for the purpose of determining monthly progress payments.
B. Include profit and overhead prices in each item.
C. Payment will be withheld until receipt of price breakdown.
D. Provide breakdown as follows:
E. Items listed above include, but are not limited to, the following:

1.05 SHOP DRAWINGS AND MANUFACTURER'S LITERATURE:

A. Prior to installation of any item specified as requiring submittal, submit two (2) copies for Owner's use plus the number required for return to the Contractor, of manufacturer's literature containing detailed specifications and performance data, or shop drawings fully describing the items showing fabrication, layout, setting or erection details, including erection plan and details as required.
B. Number all submittals consecutively . Resubmittals shall bear the original submittal number plus a letter suffix: Example - #30A is the first resubmittal of item #30; #30B is the second resubmittal, etc.
C. Shop drawings used at site must be approved by the Project Engineer.
D. Do not construe the approval of shop drawings to be a complete check. This approval will indicate only that the general method of construction and detailing is satisfactory. Approval of such drawings will not relieve the Contractor of the responsibility to comply with all terms and conditions of the plans and specifications. The Contractor shall be responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work.

1.06 SAMPLES:

A. Submit in Duplicate:
B. Provide samples of sufficient size to permit an accurate appraisal of color, texture, finish, workmanship, and other appropriate characteristics.

C. Submit samples with shop drawings when both are required.
D. Field Samples and Mock-Ups:
   1. Erect mock-ups at location acceptable to the DNR Construction Inspector, at project site.
   2. Construct each sample or mock-up complete to the dimension indicated, including work of all crafts required in finish work.

1.07 QUALITY ASSURANCE:

A. Coordination of Submittals:
   1. Prior to submitting required material, carefully review and coordinate all aspects of each item being submitted.
   2. Verify that each item and its submittal conform in all respects with the specified requirements.
   3. Prior to sending submittals to Project Engineer, the stamp and sign each submittal, certifying that they conform in all respects with the specified requirements.
B. Substitutions:
   1. The contract is based on the standards of quality established in the Contract Documents. Substitutions will be considered only when listed with the Project Engineer prior to the bid date, and when substantiated by Contractor's submittal of required data within 35 calendar days after award of contract.
   2. The following products do not require further approval except for interface within the work:
      a. Products specified by reference to standard specifications such as ASTM or similar standards.
      b. Products specified by manufacturer's name and catalog model number for which another product is not substituted.
   3. Do not substitute materials, equipment or methods unless such substitutions have been specifically approved in writing.
C. Or Equal:
   1. Where the phrase "or equal," or "or equal as approved by the Project Engineer," occurs in the Contract Documents, do not assume that the materials, equipment or methods will be approved as equal unless the item has been specifically approved for this work by the Project Engineer.
   2. The Project Engineer's decision shall be final.

1.08 RESUBMISSION REQUIREMENTS:

A. Shop Drawings:
   1. Revise initial Drawings as directed and resubmit in accordance with submittal procedures.
   2. Indicate on Drawings all changes which have been made in addition to those requested by the Project Engineer.
B. Product Data and Samples: Resubmit new data and samples as specified for initial submittal.
C. Make all resubmittals within 7 calendar days after date of Project Engineer's previous review.

1.09 DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

A. Project Engineer will distribute copies of shop drawings and product data, after review, to:
   1. DNR Construction Inspector (1 copy)
   2. Project Engineer's File (1 copy)
   3. General Contractor (remaining copies)
B. Project Engineer will distribute samples in accordance with requirements.

1.10 CONTRACTOR RESPONSIBILITIES:

A. Review shop drawings, product data, and samples prior to submission to the next level of control.
B. Verify:
   1. Field dimensions.
   2. Field construction criteria.
   3. Catalog numbers and similar data.
C. Coordinate each submittal with requirements of:
   1. The work.
   2. The contract documents.

3. The work of other contractors.

D. Contractor's responsibility for errors and omissions in submittals is not relieved by Project Engineer's review of submittals.
E. Notify Project Engineer, in writing, of proposed deviations in submittals from contract requirements, prior to or at the time of submission.
F. Contractor's responsibility for deviations in submittals from contract document requirements is not relieved by Project Engineer's review of submittals.
G. Do not begin any work which requires submittals without having Project Engineer's stamp and initials or signature indicating approval.

1.11 REQUIRED SUBMITTALS:

A. Include, but do not limit to, the following submittals:

Spec. Section	Item Description	Shop Drawing	Product Data	Samples, Test Results, Certification
N/A				

1.12 RECORD DRAWINGS:

A. Provide and maintain at the project site, one complete set of prints of the project drawings. The drawings shall be kept in good, clean and readable condition.
B. The project site drawings shall have neatly inscribed all changes in work including relocation of lines, valves and fixtures, change in type of materials, etc. Changes shall be noted with red pencil or red ink.
C. Submit these corrected prints at time of final acceptance and prior to final payment. Note all data and changes on these record drawings in sufficient detail and clarity and provide information necessary for preparation of "as-built" drawings.
D. Final payment will be withheld until a set of corrected prints of the record drawings has been received by the Project Engineer/DNR Construction Inspector.

1.13 GUARANTEES, WARRANTIES AND CERTIFICATES:

A. Submit all guarantees, warranties and certificates prior to final payment.
B. Refer to Section 01700 of these specifications.

1.14 OPERATING AND MAINTENANCE INSTRUCTIONS:

A. Submit all operating and maintenance instructions to the DNR Construction Inspector prior to final payment.
B. Refer to Section 01700 of these specifications.

1.15 CHANGE ORDER PRICE QUOTES:

A. In the event of the need for change order, the DNR Construction Inspector will request a price quote from the Contractor for proposed changes to the contract.
B. For evaluation purposes, the Contractor's quote shall be broken down to show the costs of labor and materials for each proposed category of work included with the change, along with the total cost for Contractor's overhead, profit and bond for the proposed change.
C. All contract time extensions required as a result of a proposed change must be justified and supported in detail at the time of the proposal.

1.16 TEST REPORTS:

A. Refer to Section 01400 of these specifications.

1.17 DELIVERY TICKETS:

A. Submit to the DNR Construction Inspector one legible copy of each delivery ticket for all material delivered to the construction site.

B. The delivery ticket shall show brand name, catalog number and number of items received.

END OF SECTION 01300

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SCOPE:

A. Supplementary tests and reports required in this section with any tests, reports, and other information that may be required additionally in any section of the specifications.
B. Inspection, sampling, and testing is required, but not limited to, the following:
   1. Section 03300 – Cast In Place Concrete
C. Sampling and testing frequencies and requirements are to comply with IDOT IM-204.

1.03 TESTS BY INDEPENDENT TESTING LABORATORY:

A. Testing Laboratory:
   1. Contractor to select and pay for an independent testing laboratory, acceptable to the Project Engineer, to perform specified services required by the contract.
   2. Employment of testing laboratory will in no way relieve Contractor's obligations to perform work in accord with the contract.
   3. Include in lump sum bid the cost for all testing services required. No separate payments will be made for testing. Include all associated costs in the various appropriate bid items. Project Engineer/DNR Construction Inspector will direct all tests. The Contractor shall pay the testing firm.
B. Contractor Shall:
   1. Make available at no cost, all material to be tested.
   2. Provide labor necessary to supply samples and assist in making tests.
   3. Advise laboratory of the identity of material sources and instruct suppliers to allow inspections by laboratory.
C. Testing laboratory shall:
   1. Submit written report promptly, covering each inspection and test to the Project Engineer, including:
      a. Date issued.
      b. Project title and number.
      c. Testing laboratory name and address.
      d. Name and signature of laboratory technician.
      e. Date of inspection and sampling.
      f. Record of temperature and weather.
      g. Date of test.
      h. Identification of product and specification section.
      i. Location of project.
      j. Type of inspection or test.
      k. Observations regarding compliance with Contract Documents.
   2. Promptly notify Project Engineer of irregularities or deficiencies of work which are observed during performance of testing services.
   3. Perform additional services required by the Project Engineer/DNR Construction Inspector.
D. Laboratory is not authorized to:
   1. Release, revoke, alter or enlarge on, contract requirements.
   2. Approve or accept any portion of work.
   3. Perform any duties of the Contractor.
E. Conduct tests in accordance with the requirements of the designated specifications or, where not specified, the latest appropriate standard of the American Society for Testing and Material.

1.04 LABORATORY SERVICES AND TESTS REQUIRED:

A. Concrete:
   1. Secure samples of aggregates Contractor proposes to use and test for compliance with specifications.

2. Certify compliance with specification of cement proposed for use by the Contractor.
3. Review concrete design mix proportions for the required concrete strengths using materials Contractor proposes to use on the project. Incorporate specified admixtures and not less than amount of cement specified. Perform appropriate laboratory tests, including compression tests of cylinders and slump test to substantiate mix designs. Submit one copy of report to the Project Engineer, one copy to the DNR Construction Inspector, and one copy to the Contractor, clearly indicating the results of the mix design review.
4. When requested by the DNR Construction Inspector, inspect and test material during concrete work to substantiate compliance with specifications and mix requirements.
5. Slump Test: The DNR Construction Inspector will require slump tests to be performed as he desires in accordance with the provisions of these specifications.
6. Test Cylinders:
    a. Each test shall consist of a set of three cylinders provided by the Contractor. Sampling and testing frequencies and requirements are to comply with IDOT IM-204.
    b. Provide a minimum of one set of test cylinders each day concrete is placed.
    c. The Contractor shall make and cure test cylinders in conformity with ASTM C-31.
    d. Note on record drawings placement locations represented by test cylinders.
7. Perform compression tests in accordance with applicable sections of IDOT specifications.
8. Identify all test cylinders with symbols to indicate location on the job where concrete tests were made. Note on record drawings.

B. Aggregate gradation and compaction as per applicable specifications.

1.05 CONTRACTOR'S RESPONSIBILITIES:

A. Furnish product mix design to meet or exceed Contract Documents.
B. Cooperate with laboratory personnel and provide access to work, as well as to manufacturer's operations.
    1. Monitor each inspection, sampling and test.
C. Provide to laboratory, preliminary representative samples of material to be tested, in specified quantities.
D. Furnish copies of mill test reports.
E. Furnish verification of compliance with contract requirements for material and equipment.
F. Furnish casual labor and facilities:
    1. To provide access to work to be tested.
    2. To obtain and handle samples at site.
    3. To facilitate inspections and tests.
    4. For laboratory's exclusive use for storage and curing of test samples.
G. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests. Notify DNR Construction Inspector when work is ready for testing. Schedule testing after approval of the DNR Construction Inspector. The Department of Natural Resources will not pay for any testing scheduled without the DNR Construction Inspector's specific authorization.
H. Correct work which is defective or which fails to conform to the Contract Documents in accordance with the general condition. Do not delay the project schedule or the work of other contractors with corrective work.
I. Pay all costs of re-testing when test results indicate non-compliance with contract requirements.
J. Patch all surfaces and areas disturbed by testing operations.

END OF SECTION 01400

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 WEATHER PROTECTION:

A. General:
   1. Provide necessary protection against weather to maintain all materials, apparatus, fixtures, and work free from damage whether in shipment, in storage, or in place.
   2. Do not perform wet work when temperature is below 40 degrees Fahrenheit or is forecast to be below 40 degrees Fahrenheit within the ensuing 48 hours, except when work is properly protected and sufficient heat is provided.

B. Heat Provision:
   1. When heat is required for proper weather protection, provide temporary enclosures of work and acceptable means to provide sufficient heat to maintain a temperature of not less than 50 degrees Fahrenheit. Provide higher temperatures when required by these specifications.
   2. Use only heating apparatus and fuels of approved safe types. Keep equipment and surroundings in a clean, safe condition. Use flame resistant tarpaulins and other materials for temporary enclosure of space. Use vented heaters only.

1.03 TEMPORARY UTILITIES:

A. Electricity, Lighting and Heating:
   1. Provide such temporary service as may be required for construction purposes with required distributing facilities and meter.
   2. Pay the cost of all electrical energy used on this part of the project until completion of the contract. If partial occupancy by the Owner occurs prior to completion, the Owner will pay proportional share of electrical energy used.
   3. Provide light bulbs required for all temporary construction lighting and replace when necessary.
   4. Use no temporary service material in permanent system without written approval of the Owner. When temporary electrical lines are no longer required, remove them and restore any parts of buildings or grounds damaged by such removal to original condition.
   5. Provide and maintain temporary lighting at barricades as required for safety.
   6. Provide any heating required by these specifications.

B. Telephone:
   1. Provide and pay all charges for telephone service.

C. Water:
   1. Provide, protect, and maintain an adequate water supply for use on the project for construction purposes, either by means of the permanent water supply line or by installing a temporary waterline as may be required.
   2. Install, valve, maintain, and protect such water supply lines as may be required.
   3. Remove temporary lines when they are no longer required. Restore to original condition any part of grounds or buildings damaged by removal.
   4. Pay the cost of all water used on this portion of the project until final completion of the contract.

D. Toilets:
   1. Provide and maintain suitable, weather tight, painted sanitary toilet facilities for all workers during construction period. When toilet facilities are no longer required, promptly remove from site. Disinfect, clean or treat the area as required.
   2. Provide and maintain facilities in accordance with requirements of applicable local and state health authorities and OSHA.
   3. Keep all toilet facilities clean and supplied with toilet paper at all time.

1.04 OPERATION AND STORAGE AREAS:

A. All operations of the Contractor (including storage of materials) upon premises shall be confined to areas authorized or approved by the DNR.
B. Premises adjacent to the construction will be made available for use by the Contractor without costs whenever such use will not interfere with other uses or purposes.
C. Do not enter on or occupy with personnel, tools, equipment, or material any ground outside the DNR's property without the written consent of the owner of such ground.
D. Other contractors and employees or agents of the DNR may for all necessary purposes enter upon the work and premises used by the Contractor, and the Contractor shall conduct his work so as not to impede unnecessarily any work being done by others on or adjacent to the site.
E. Provide and maintain weather tight storage sheds for own use.
F. Provide storage sheds with substantial floors raised a minimum of six (6) inches above the ground.
G. Locate all storage sheds as approved by the DNR Construction Inspector.
H. Completely remove from site after completion of work.

1.05 PROTECTION AND RESTORATION:

A. General: Protect all structures, including walks, pipelines, trees, shrubbery, and lawns during the progress of the work; remove from the site all debris and unused materials; and, upon completion of the work, restore the site as nearly as possible to its original condition, including the replacement, at the Contractor's sole expense, of any facility or landscaping which has been damaged.

1.06 ACCESS ROADS:

A. Temporary Roads and Storage Areas:
   1. Construct and maintain all temporary access roads and storage areas required. Locate and construct all roads, ramps, mats, storage areas, and similar items in a manner approved by the Owner and provide overall management of available site areas.
B. Laws and Regulations:
   1. Observe all laws and regulations of the local, county, and state authorities in the use of all public roads and highways for the transportation of materials and equipment in connection with work on the project. Observe all overhead construction, bridges, cables, and the like. Repair damage to roads, highways, overhead construction and similar off-site items, resulting from operations in connection with this project.

1.07 WATER CONTROL:

A. Carry on construction work in a manner that will direct surface water away from the structures and away from adjoining property.
B. Provide own means of pumping, well pointing or otherwise maintaining excavations free from ground water encountered. Provide means of properly conveying such water off the construction site.

1.08 PARKING:

A. Make necessary provisions for parking of all employees on the project within the site limits. Include necessary access roads and maintenance of all roads and parking areas during construction period.
B. Park vehicles to avoid interference with normal construction activities and to avoid interference with Owner's operation.

1.10 SAFETY:

A. Provide at least one non-freezing-type fire extinguisher in each workshop and shed used for storage of materials on the premises. Place in readily accessible location.
B. Provide and maintain a basic first aid kit.
   1. Provide first aid supply commensurate with size of project with items necessary for first aid treatment of all injuries.
   2. Advise workers of the location of first aid supplies.
   3. Post telephone numbers of nearest hospital or ambulance service and fire station in conspicuous location. Advise all workers of location of telephone numbers.

END OF SECTION 01500

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes: The work consists of furnishing all labor, material and equipment for the control and prevention of environmental pollution and damage as the result of construction operations under this Contract and for those measures set described herein, as indicated on the Drawings, specified herein, and as required for the construction of all work of this contract.
   1. Scope: The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.
   2. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract.
      a. Confine activities to areas defined by the Drawings and Specifications.

B. Related Sections: Drawings and General Provisions of the Contracts, including the General Covenants and Provisions, Supplementary Covenant and Provisions and General Requirements.

1.02 REFERENCES:

A. Provide protection of Air Resources in accordance with the following state and local codes and rules: Iowa Department of Environmental Quality Act, Oh. 455B of the 1977 Code of Iowa; Iowa Department Rules, 1973 I.D.R. 267 et seq.

1.03 DEFINITIONS:

A. Environmental pollution and damage: For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes.

1.04 QUALITY ASSURANCE:

A. Quality Control: Establish and maintain quality control for environmental protection of all items set forth herein.
   1. Record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken.
   2. Assure compliance of subcontractors with this section.

B. Regulatory Requirements:
   1. Notification: The Project Engineer/DNR Construction Inspector will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, state or local laws, or regulations, permits and other elements of the Contractor's environmental protection plan.
   2. After receipt of such notice, inform the Project Engineer/DNR Construction Inspector of proposed corrective action and take such action as may be approved.
   3. If the Contractor fails to comply promptly, the Project Engineer/DNR Construction Inspector may issue an order stopping all or part of the work until satisfactory corrective action has been taken.
      a. No time extensions shall be granted such suspension.

C. National Pollutant Discharge Elimination System (NPDES): Contractor to provide a Notice of Intent (Form 1415) for application of a General Permit for Storm Water Discharge, file all necessary Forms and Drawings with the applicable Bureau of the DNR, and pay necessary application fees.(Required for sites of one acre or more)
   1. For Storm Water General Permit Assistance: Contact (515)281-7017 or (515)281-8693 for information.

D. Pollution Control Training: Train personnel in all phases of environmental protection.
   1. Include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to insure adequate and continuous environmental pollution control.

1.05 PROJECT/SITE CONDITIONS:

A. Environmental Requirements:
   1. Protection of Land Resources: Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.

1.06 Maintenance of Pollution Control Facilities:

A. Maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

PART 2 - PRODUCTS

2.01 MATERIAL AND EQUIPMENT:

A. Provide and maintain material and equipment necessary to perform the specified work.

PART 3 - EXECUTION

3.01 EXAMINATION:

A. Verification of Conditions: Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.
B. Limits of Work Area:
   1. Mark the areas that are not required to accomplish work to be performed under this contract.
   2. Mark or fence isolated areas within the general work area which are to be saved and protected.

3.02 PROTECTION OF LAND RESOURCES:

A. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Contracting Authority.
B. Do not fasten nor attach ropes, cables, or guys to any trees for anchorage unless specifically authorized.
C. Where such special emergency use is permitted, provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.03 PROTECTION OF MONUMENTS AND MARKERS:

A. Protect monuments and markers before and during construction operations.
B. Where construction operations are to be conducted during darkness, the markers shall be visible.
C. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.

3.04 PROTECTION OF LANDSCAPE:

A. Clearly identify trees, shrubs, vines, grasses land forms and other landscape features to be preserved by marking, fencing, or wrapping with boards, or any other approved techniques.

3.05 Location of Field Offices, Storage and Other Contractor Facilities:

A. Place field offices, staging areas, stockpile storage, and temporary buildings in areas approved by the Project Engineer/DNR Construction Inspector.
B. Do not temporarily move or relocate Contractor facilities unless approved by the Engineer/DNR Construction Inspector.

3.06 Disposal of Solid Wastes:

A. Place solid wastes in containers to be emptied on a regular schedule.
   1. Conduct handling and disposal to prevent contamination.
   2. Transport all solid waste off state property and dispose of in compliance with Federal, state, and local requirements for solid waste disposal.

3.07 Disposal of Chemical Waste:

A. Store chemical waste in corrosion resistant containers; remove from the work area and dispose of in accordance with Federal, state and local regulations.

3.08 Disposal of Discarded Materials:

A. Handle discarded materials other than those which can be included in the solid waste category as directed by the Contracting Authority.

3.09 Preservation and Recovery of Historical, Archeological and Cultural Resources:

A. Existing historical, archeological and cultural resources within the Contractor's work area will be so designated by the Department and precautions taken to preserve all such resources as they existed at the time they were pointed out to the Contractor.
B. Install protection and assume responsibility for the preservation of these resources as designated on the Drawings, or if not designated as necessary for their preservation.
C. Report any unusual items that might have historical or archeological value, found or observed during construction activities as soon as practicable to the DNR Construction Inspector.

3.10 Protection of Water Resources:

A. Keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters.
B. Implement applicable management techniques to control water pollution in accordance with the listed construction activities which are included in this contract.
C. Installation, maintenance and removal of water pollution control methods and materials to be incidental to other items of work on the project, unless a specific Bid Item for Erosion Control exists.
D. Comply with detailed Project Plans for temporary erosion control procedures to be performed on this project.

3.11 Protection of Fish and Wildlife Resources:

A. Keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife.
B. List species that require specific attention along with measures for their protection prior to beginning of construction operations.

3.12 Protection of Air Resources:

A. Keep construction activities under surveillance, management and control to minimize pollution of air resources. Perform or operate activities, equipment, processes, and work to accomplish the specified construction in strict accordance with the State of Iowa and all Federal emission and performance laws and standards.
B. Implement special management techniques as set out below to control air pollution by construction activities.
    1. Control of Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities at all times, including weekends, holidays and hours when work is not in progress.
        a. Maintain all work areas within or outside the project boundaries free from particulates which would cause the applicable air pollution standards to be exceeded or which would cause a hazard or a nuisance.
        b. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area.
        c. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times, The Contractor must have sufficient competent equipment available to accomplish this task.
        d. Perform control of particulates as the work proceeds and when ever a particulate nuisance or hazard occurs.
    2. Control hydrocarbons and carbon monoxide emissions from equipment in accordance with Federal, State and local allowable limits at all times.
    3. Control odors at all times for all construction activities.
    4. Assume responsibility for monitoring of air quality throughout the entire areas affected by the construction activities.

3.13 Protection of Sound Intrusions:

A. Keep construction activities under surveillance and control to minimize damage to the environment by noise.

3.14 Mosquito Control:

A. During dredging and due to large areas of shallow water in the disposal area, mosquito breeding must be controlled.
B. Deposit dredge material to minimize stagnant water pools.
C. Conduct non-aerial spraying or other methods of application of EPA approved chemicals to control mosquito breeding.

3.15 CLEANING:

A. Post Construction Clean Up: Cleanup all areas used for construction.
B. Restoration of Landscape Damage: Restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas, in accordance with the plan submitted for approval by the Contracting Authority.

END OF SECTION 01560

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 MATERIAL:

A. All materials, equipment, and other items incorporated in the work of this project must be new, and both materials and workmanship of best grade of their respective kinds.
B. To assure ready availability of materials, parts, or components for repair, replacement or future expansion purposes, all materials, equipment, and related components must be obtained from sources which maintain a regular, domestic stock.
C. Throughout all sections of these specifications, provide other material not specifically described but required to provide Owner with a complete and proper installation of all phases of the work of this contract. Select these materials subject to the approval of Project Engineer/DNR Construction Inspector.

1.03 ITEMS NOT IN CONTRACT:

A. All items indicated “N.I.C.” on drawings or specifications are items not included in this contract.
B. Provide necessary provisions in the work of this project to permit proper installation of “N.I.C.” items.

1.04 TRANSPORTATION AND HANDLING:

A. Provide protection against damage for all materials during delivery to and storage at the site.
B. Handling of all materials and equipment shall be such as will prevent damage to such material and/or equipment.
C. Replace or repair to the satisfaction of the DNR Construction Inspector, all items damaged because of Contractor’s failure to properly protect during transportation and handling, when on or off the project site, at no additional cost to the Owner.

1.05 STORAGE AND PROTECTION:

A. Protect all materials, work, and equipment against damage at all times.
B. Refer to Section 01500 for requirements for storage sheds. Store all materials that might be damaged within storage sheds.

END OF SECTION 01600

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 CLEANING UP:

A. Keep premises free of accumulation of surplus materials and rubbish from contractor and subcontractor operations.
   1. Remove all rubbish from premises.
B. Remove rubbish weekly and at other times as required by the DNR Construction Inspector. Keep interior of building free at all times of unattended combustible rubbish.
C. Immediately prior to final inspection:
   1. Clean all surfaces to condition acceptable for immediate occupancy.
   2. Remove all marks, stains, fingerprints, paint droppings, and other foreign matter from all finished items.

1.03 GUARANTEES, BONDS AND AFFIDAVITS:

A. Submit all written guarantees, bonds and affidavits required to the Owner prior to final payment.
B. Guarantees shall extend the full period of the required guarantee period after:
   1. Replacement of work found defective during guarantee period.
   2. Repair of inoperative items or adjustments to proper working conditions of items not operating properly at time of inspection at final completion.

1.04 RECORD DRAWINGS:

A. Required prior to final payment. Refer to Section 01300 of these specifications. Submit to DNR Construction Inspector.

1.05 SHOP DRAWINGS:

A. Refer to Section 01300 of these specifications.

1.06 TESTS:

A. Complete all tests required to prove actual operating performance of equipment and systems incorporated into the project. Refer to Section 01400 of these specifications.
B. Submit reports of all tests to the Owner prior to final payment.

1.07 MAINTENANCE AND OPERATING:

A. Refer to Section 01730 of these specifications, if applicable.

1.08 DAMAGE TO EXISTING STRUCTURES:

A. Prior to final acceptance by the Owner, repair or otherwise return to original condition any parts of the existing facilities which have been damaged during construction.

1.09 FINAL INSPECTION:

A. Request a final inspection in writing, at least ten days prior to the anticipated date of completion, from the DNR Construction Inspector.
B. Work will not be considered ready for final inspection until all the work has been completed and the Contractor has certified that all items are properly operating and in strict compliance with the contract documents.
C. The Contractor or his project supervisor shall be present at the job site during the final inspection.
   1. The DNR Construction Inspector will present the Contractor, after the final inspection, a list of any items not meeting contract requirements. This list will be confirmed in writing and all items listed must be made acceptable before final payment will be made.

END OF SECTION 01700

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes: To aid the instruction of operating and maintenance personnel, and to provide a source of information regarding the systems incorporated into the Work, furnish and deliver the data described in this section and in pertinent other sections of these specifications.
   1. Additional data requirements may be described in individual sections.

B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SUBMITTALS:

A. Comply with pertinent provisions of Section 01300.

B. Submit two copies of a preliminary draft of the proposed manual or manuals to the Engineer for review and comments.

C. Unless otherwise directed in other sections, or in writing by the Engineer, submit two copies of the final manual to the DNR Construction Inspector.

1.03 QUALITY ASSURANCE:

A. In preparing required data, use only personnel thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with this section's requirements, and sufficiently skilled in technical writing to communicate the essential data.

PART 2 - PRODUCTS

2.01 INSTRUCTION MANUALS:

A. Where instruction manuals are required to be submitted under other sections of these specifications, prepare in accordance with the provisions of this section.

B. Format:
   1. Size: 8-1/2" x 11"
   2. Paper: White bond, at least 20 lb. weight
   3. Text: Neatly written or printed
   4. Drawings: 11" in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the manual and provide a drawing pocket inside rear cover or bind in with text.
   5. Flysheets: Separate each portion of the manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
   6. Binding: Use heavy-duty plastic or fiberboard covers with 3-ring binders. All binding is subject to the Owner's approval.
   7. Measurements: Provide all measurements in U.S. standard units: feet-and-inches, lbs., and cfm.

C. Provide front and back covers for each manual, using durable Owner's approved material, clearly identified on or through the cover with at least the following information:

   OPERATING AND MAINTENANCE INSTRUCTIONS
   (name and address of work)
   (name of contractor)
   (general subject of this manual)
   (space for approval signature of)
   (the owner and approval date)

D. Contents include at least the following:
   1. Neatly typewritten index near the front of the manual, giving immediate information as to location within the manual of all emergency information regarding the installation.
   2. Detailed list of subcontractors, including address, phone number and product or equipment installed.
   3. Complete instructions regarding operation and maintenance of all equipment involved, including lubrication, disassembly, and reassembly.

4. Complete nomenclature of all parts of all equipment.
5. Complete nomenclature and part number of all replaceable parts, name and address of nearest vendor, and all other data pertinent to procurement procedures.
6. Copy of all guarantees and warranties issued.
7. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.
8. Such other data as required in pertinent sections of these specifications.

PART 3 - EXECUTION

3.01 INSTRUCTION MANUALS:

A. Preliminary:
   1. Prepare a preliminary draft of each proposed manual.
   2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
   3. Secure the Architect's approval prior to proceeding.

B. Final: Complete the manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.

C. Revisions:
   1. Following the instruction of operation and maintenance personnel, review all proposed revisions of the manual with the DNR Construction Inspector.

END OF SECTION 01730

SECTION 00 11 53

REQUEST FOR QUALIFICATIONS

PART 1 GENERAL

1.1 SUMMARY

A. The purpose of the Request for Qualifications in this Document is to provide the Owner with a mechanism for evaluating and determining whether Perspective Bidders are qualified to participate in the project.

1.2 DEFINITIONS

A. Prospective Bidders refers to the entity or person who submits a Bid Form. The requirements outlined in this specification are specific to the Prospective Bidder and the specific office of the Perspective Bidder that is proposed to perform the Work.

1.3 PROJECT DESCRIPTION AND REQUIREMENTS

A. Fort Atkinson was constructed in 1840 consists of four rubble course masonry structures and numerous archeological resources.

B. The building is listed in the National Register of Historic Places. This *Exterior Masonry and Structural Repair* project is being funded by the Save America's Treasures grant program with contributions from the Friends of Fort Atkinson and the State of Iowa. The Work performed at Fort Atkinson must be in accordance with the Secretary of the Interior's Standards. The Secretary of the interior's Standards for Preservation are as follows:

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.[1]

The basic guidelines for work on the buildings and their immediate setting are as follows:

- Undertake all work in compliance with the Secretary of the Interior's Standards for Preservation.
- Retain the character of the historic site by protecting the individual building and the site, including the significant site features.
- Document through detailed as-built drawings, photographs, and written narrative all changes and treatments to the historic site and buildings. Maintain records of treatments and preserve documentation according to professional archival standards.
- Retain features and materials at both the exterior and interior of the buildings that date from the period of significance (1840-1942) to the greatest extent possible.

C. The four historic structures and the archeological resources are constructed of rubble course masonry to be repaired and stabilized in place.

1.4 QUALIFICATION REQUIREMENTS

A. Bidder shall have a minimum of five years' experience in performing structural repair work on building enclosures similar to the nature, scope, and complexity to work indicated in the Drawings.

B. Historic Structure Repair and Documentation. Perspective Bidders should demonstrate that they have applicable experience working on historically significant structures, working in accordance with the Secretary of the Interior's Standards, and providing documentation for compliance and review by the National Park Service, Iowa State Historic Preservation Office (or other State preservation office), or Iowa Department of Natural Resources (or other State-level government entity).

C. Stone Masonry Repair Qualifications. Perspective Bidders should demonstrate that they have applicable experience in performing structural repair work similar to the nature, scope, and complexity to work indicated in the Drawings. This would include repair work on existing rubble course stone masonry structures.

1.5 SUBMITTALS

A. Submit a list of at least five projects for which the Prospective Bidder has performed similar Work. As outlined above, similar Work may include work on historically significant structures, such as those listed in the National Register of Historic Places, specifically, those for which documentation and grant compliance and review was required. Similar work may also include projects of similar construction (rubble stone masonry), complexity, or scope. The list should include at least one project for each of the Qualification Requirements (Item 1.4.a, 1.4.b, and 1.4.c). For each project listed the following information should be provided:

1. Project name
2. Project location
3. Client name and contact information including address, phone number, and email address
4. Description of scope of work referencing applicable experience to this project
5. Year(s) in which the project was performed
6. Construction period

[1] Ibid. The guidelines that accompany the Standards also note that new materials should be distinguishable from old.

7. Total project fees

1.6 QUALITY ASSURANCE

A. Independent of information submitted by the Bidder, investigations may be undertaken to determine the ability of the Bidder to perform the work and the Bidder shall furnish to the Owner's Representative all such information and data for this determination, as may be requested.

B. The Owner reserves the right to reject any Bid if the evidence submitted by, or the investigation of, such Bidder fails to satisfy the Owner that said Bidder is properly qualified to carry out the obligation of the Contract and to complete the work contemplated herein.

SECTION 01 35 13

ARCHEOLOGICAL PROTECTION

PART 1 GENERAL

1.1 SUMMARY

A. The work of this section consists of protecting below-grade archeological resources contained in the soil throughout the site during construction.

1.2 DEFINITIONS

A. Archeological Resources: Archeological resources are the physical evidences of past human activity, including evidences of the effects of that activity on the environment. Archeological resources represent both prehistoric and historic time periods. They are found above and below ground.

B. Archeologically Sensitive Areas: Areas that have the potential to contain significant (National Register eligible) archeological resources, If National Register eligible or listed archeological resources could not be avoided, an appropriate mitigation strategy would be developed in consultation with the State Historic Preservation Office (SHPO) officer and, if necessary, associated American Indian tribes.

C. Non-Sensitive Areas: Areas with little, if any, potential of containing significant (National Register eligible) archeological resources.

D. Archeological Monitor: Qualified archeologist who meets or exceeds the minimum professional requirements established in the Secretary of the Interior's Standards designated to oversee construction activities that could disturb archeological resources.

E. Restricted Access Zone: A protection zone at and around each archeological resource intended to protect the resource. The zone includes the area above the below ground resource as well as a 10'-0" perimeter buffer around the full perimeter of the resource that is to be demarcated and not to be disturbed during construction.

F. Buffer Zone: A zone, measuring 5'-0" wide, adjacent to and expanding the Restricted Access Zone around each archeological site that may be protected with ground protection matting to be used as part of a temporary Access Path or Staging Area during construction. Where no ground protection matting is installed, the Buffer Zone should be treated as extension to the Restricted Access Zone and demarcated on site.

G. Access Path: A denoted temporary path used during construction to access all work zones and staging areas within the site during construction.

H. Staging Areas: Denoted temporary areas to be used by the Contractor during construction to store supplies and equipment; provide a location for a site office trailer, electrical generators, and restrooms; and parking for workers.

1.3 SUBMITTALS

A. Submit all submittals a minimum of 30 days before start of ground disturbing work and allow for review by the State Historic Preservation Office.

B. Archeology Site Protection Plan. The site protection plan should indicate the following:
   1. Archeologically Sensitive and Non-Sensitive Areas
   2. Restricted Access and Buffer Zones
   3. Temporary staging areas, access paths, and work zones
   4. Dimensions of minimum clearances of all staging areas, access paths, Restricted Access Zones, and Buffer Zones.

C. Site Protection. Narrative or shop drawings showing site protection, such as ground protection matting, that will be used to protect Archeologically Sensitive Areas and Buffer Zones.

D. Schedule. Daily work schedule for performing ground disturbing work. This would include initial mobilization and protection of the site as well as below-grade site work at the North Barracks and Southwest Blockhouse.

E. Inadvertent Discovery Protocol. The Archeological Monitor shall outline protocols and procedures for archeological resources that may be inadvertently discovered during ground disturbing activities. The protocol should include a contact at the State Historic Preservation Office and the Office of the State archaeologist (OSA) that should be notified upon discovery as well as procedures for protecting the site and procedures for evaluation and documentation of the resource by the Archeological Monitor.

1.4 QUALITY ASSURANCE

A. All ground disturbing activities and site work including preparation and protection of the site Archeologically Sensitive Areas and below-grade work that are North Barracks and Southwest Blockhouse should be performed under the observation of the Archeological Monitor.

PART 2 PRODUCTS

2.1 MATERIALS

A. Ground Protective Matting
   1. Unless otherwise specified, ground protection matting shall meet the following requirements:
      a. Along with associated components, be of sufficient and known mechanical properties, stiffness, and strength capable of supporting, without failure, the intended maximum loads or rated capacities of equipment intended for use on the project without disturbance to the soil below.
      b. Provide a means of support over soft, unstable, archeologically sensitive or otherwise unsuitable ground conditions. The matting shall provide a means of distributing concentrated and heavy loads over large areas such as to minimize soil and ecological disturbance and to provide a rigid, stable, and safe work platform.
      c. As installed, will neither separate nor migrate when spreading loads are applied.
      d. Hardware, when used in the assembly of mats, shall be as specified in the manufacturer's literature and ensure that the assemblage of mat components function as a single unit.

e. Mat material(s) shall neither introduce nor leave behind residual traces (chemical, biological, or other) of material considered harmful to the environment.
f. Ensure that no ground disturbance will result from installation/removal of matting.
g. Mats that are composed of wood or wood-based products should:
   1) be consistent with current regulations defined by Phytosanitary Measure ISPM No. 15, and APHIS, of the USDA Forest Quarantines, including transportation of the mats.
   2) Not be constructed from pressure-treated wood.

B. Barricades
   1. Unless otherwise specified, barricades shall meet the following requirements:
      a. Provide a stable barrier designed to withstand anticipated loads, including wind loads and impact loads, from conditions and equipment to be used on site.
      b. Provide a means of support on soft, unstable, and archeologically sensitive ground. Barricades should not be secured or supported by means that penetrate into the ground.
      c. Barricades should be of a non-corrosive material and of an appropriate size and color to be visually apparent as a site boundary during construction work.
      d. Hardware, when used in the erection, assembly, or anchorage of the barricades, shall be as specified in the manufacturer's literature and ensure that the assemblage of barricade components function as a single unit.
      e. Barricade material(s) shall neither introduce nor leave behind residual traces (chemical, biological, or other) of material considered harmful to the environment.
      f. Ensure that no ground disturbance will result from installation/removal of barricades.
      g. Barricades that are composed of wood or wood-based products should:
         1) be consistent with current regulations defined by Phytosanitary Measure ISPM No. 15, and APHIS, of the USDA Forest Quarantines, including transportation of the mats.
         2) Not be constructed from pressure-treated wood.

PART 3 EXECUTION

3.1 PERSONNEL

A. The Archeological Monitor shall be present on site during site preparation and all ground disturbance and excavation work.

3.2 PREPARATION

A. Clear areas to receive protective ground matting and barricades, of all debris and foreign objects.

B. When turf is existing and when feasible, the area to be protected shall be mowed to a height of three to five inches.

C. The use of geotextiles, sand fill, or composite material pads may be recommended to provide a stable and level substrate upon which protective matting and barricades can be placed.

D. Do not use damaged protective matting or barricades.

3.3 INSTALLATION

A. Refer to the manufacturer's instructions for ground protection matting and barricade installation. Within Archeologically Sensitive Areas, hardware and anchorage shall not penetrate the ground.

B. If required to provide a flat and stable substrate for matting and barricades, install course sand fill or a soft matting at divots and irregular surfaces to provide continuous bearing surface for the matting and barricades.

C. If, during the course of construction, the matting or barricades are damaged, dislodged, displaced, or disconnected from each other; the Contractor shall replace, repair, and/or reset all non-functioning protections as necessary to achieve the level of protection required to protect the ground within Archeologically Sensitive Areas.

3.4 INSPECTION

A. Inspect protective matting and barricades daily for areas of damage, displacement, or disconnection between components and, if found, repair/replace immediately

3.5 REMOVAL

A. The Contactor shall remove the temporary protection mats and barricades as well as supplemental materials, such as sand or soft matting, used to provide a flat and stable substrate, after construction work is complete.

B. Ensure that no ground disturbance will result from installation/removal of matting and barricades.

C. The Contractor shall restore the site to the pre-existing condition at no additional cost to the DNR.

END OF SECTION

SECTION 01 35 91

HISTORIC TREATMENT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section includes general protection and treatment procedures for designated historic spaces, areas, rooms, and surfaces in Project and the following specific work.

1.2 DEFINITIONS

A. Consolidate: To strengthen loose or deteriorated materials in place.

B. Existing to Remain: Existing items that are not to be removed or dismantled.

C. Historic: Spaces, areas, rooms, surfaces, materials, finishes, and overall appearance which are important to the successful preservation and rehabilitation as determined by Engineer. Designated historic surfaces are scheduled in this Section.

D. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Engineer.

E. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.

F. Remove: Specifically for historic spaces, areas, rooms, and surfaces, the term means to detach an item from existing construction to the limits indicated, using hand tools and hand-operated power equipment, and legally dispose of it off-site, unless indicated to be salvaged or reinstalled.

G. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

H. Salvage: To protect removed or dismantled items and deliver them to Owner.

1.3 INFORMATIONAL SUBMITTALS

A. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's historic treatment operations.

1.4 STORAGE AND PROTECTION OF HISTORIC MATERIALS

A. Salvaged Historic Materials:

1. Clean only loose debris from salvaged historic items unless more extensive cleaning is indicated.

2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.

3. Store items in a secure area until delivery to Owner.

4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

B. Historic Materials for Reinstallation:

1. Repair and clean historic items as indicated and to functional condition for reuse.
2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make item functional for use indicated.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Engineer, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after historic treatment and construction work in the vicinity is complete.

D. Storage and Protection: When taken from their existing locations, catalog and store historic items within a weathertight enclosure where they are protected from wetting by rain, snow, condensation, or ground water, and from freezing temperatures.

1. Identify each item with a nonpermanent mark to document its original location. Indicate original locations on plans elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.

1.5 PROJECT CONDITIONS

A. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner. Owner will remove hazardous materials under a separate contract.
    a. In the case of asbestos, stop work in the area of potential hazard, shut off fans and other airhandlers ventilating the area, and rope off area until the questionable material is identified. Re-assign workers to continue work in unaffected areas. Resume work in the area of concern after safe working conditions are verified.

PART 2 - PRODUCTS [NOT USED]

PART 3 - EXECUTION

3.1 EXAMINATION

A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work. Examine adjacent work to determine what protective measures will be necessary.

1. Before removal or dismantling of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 PROTECTION, GENERAL

A. Temporary Protection of Historic Materials:

1. Protect existing historic materials with temporary protections and construction. Do not deface or remove existing materials.

2. Do not attach temporary protection to historic surfaces except as indicated as part of the historic treatment program and approved by Engineer.

B. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

3.3 GENERAL HISTORIC TREATMENT

A. Where Work requires existing features to be removed or dismantled and reinstalled, perform these operations without damage to the material itself, to adjacent materials, or to the substrate.

B. Identify new and replacement materials and features with permanent marks hidden in the completed work to distinguish them from original materials. Record a legend of identification marks and the locations of the items on record Drawings.

3.4 HISTORIC REMOVAL AND DISMANTLING

A. Removing and Dismantling Items on or near Historic Surfaces:

1. Use only dismantling tools and procedures within 12 inches (300 mm) of historic surface. Do not use pry bars. Protect historic surface from contact with or damage by tools.

2. Unfasten items to be removed, in the opposite order from which they were installed.

3. Support each item as it becomes loosened to prevent stress and damage to the historic surface.

4. Dismantle anchorages.

3.5 HISTORIC REMOVAL AND DISMANTLING SCHEDULE

A. Existing Items to Be Removed and Replaced: Northeast Blockhouse roof to be removed; new installation to match existing. Existing conditions shall be adequately documented for reproduction after repairs are performed.

B. Existing Items to Be Removed and Reinstalled: Stone as shown on drawings an as follows:

1. North Barracks infilled openings being rebuilt.

2. Northeast Blockhouse walls to be dismantled and rebuilt.

3. Southwest Blockhouse floor pavers to be reset.

C. Existing Items to Be Removed and Salvaged: Stone as shown on drawings that is being reinstalled or reused.

END OF SECTION

SECTION 02 01 11

SHORING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Provide labor, materials, equipment, supervision, and incidentals, necessary to shore components of the structure as required for safe execution of the Work. Work includes but is not necessarily limited to:
   1. Shoring of areas of existing structure during repairs where repair procedures may result in structural integrity concerns, cracking, and/or deflection that would be detrimental to the structure.
   2. Shoring where indicated by the Architect/Engineer.
   3. Support of formwork.

B. Definition: In this section, shoring refers to shoring, re-shoring, bracing, and other temporary support means.

C. Related Sections:
   1. Section 04 01 40.10 – Dismantling Historic Materials
   2. Section 04 03 42 – Stone Restoration
   3. Section 04 96 50 – Reassembly of Historic Materials
   4. Section 05 50 00 – Metal Fabrications
   5. Section 06 10 00 – Rough Carpentry

D. Payment Procedures:
   1. Cost of shoring is incidental to repairs and shall be accounted for in associated repair unit prices.

1.2 SYSTEM DESCRIPTION

A. Performance Requirements
   1. Provide shoring to temporarily support structural members when repairs will:
      a. Remove supporting structure.
      b. Repair procedures such as concrete removal, reinforcing modifications, and repair or replacement of stone, timber, or metal will significantly weaken a member under repair.
      c. Repair procedures such as concrete removal, reinforcing modifications, and repair or replacement of stone, timber, or metal will cause significant deflection or displacement of the member under repair or adjacent members continuous with the member under repair.
   2. Design shoring to carry the full weight of the structure being supported plus appropriate superimposed dead, live, and lateral loads.
   3. At a minimum, use a 20 psf construction live load in design. Use greater construction load if Contractor operations dictate.
   4. Design shoring systems accounting for point loads where appropriate.
   5. Provide a factor of safety for shoring design as required by governing codes, ordinances, and regulations, but in no case less than 2.0.

B. Design Responsibility:
   1. Design of shoring is the Contractor's responsibility.
   2. Shoring system shall be designed by a qualified licensed professional engineer, or in states where applicable a qualified licensed structural engineer.

PART 2 PRODUCTS

2.1 MATERIALS

A. Metal, timber, or a combination of the two.

B. Adjustable to ensure a tight fit.

C. Accessories such as screw jacks, braces, shims, clips, tie-downs, splices, and connectors: Fully compatible with other shoring components.

D. Shims: Timber or steel.

E. Cribbing: Appropriately sized timber sections of sufficient length to distribute shoring reactions into the supporting structural element below.

F. Do not use damaged materials or components.

2.2 MANUFACTURED SYSTEMS

A. Adjustable post shores, frames, towers, or other assemblies specifically designed for, and intended for, temporary shoring and bracing.

B. Proprietary shoring systems shall include all necessary components for proper installation of the system in accordance with the manufacturer’s recommendations.

PART 3 EXECUTION

3.1 PREPARATION

A. Coordinate locations of shoring which may interfere with normal facility operations with the Owner.

B. If shoring is to be placed on a coated or finished surface, use appropriate protective materials to minimize damage.

C. Inspect shores and related materials before installation. Do not use damaged items.

3.2 INSTALLATION

A. Construct shoring in accordance with applicable drawings/details such as approved shop drawings and/or manufacturer’s erection drawings.

B. Assemble proprietary shoring systems using only the components supplied by the system manufacturer and in strict accordance with the manufacturer’s recommendations.

C. Shores shall be installed snug, tight, plumb, level, and square. Adjust shores and shim as necessary to ensure a tight fit and full contact against both the structural element to be supported and the supporting surface. Install using methods and sequence to minimize differential leg loading of shoring systems.

D. Keep screw extensions to a minimum and in strict accordance with manufacturer's recommendations.

E. Provide cross bracing to prevent buckling of shores and other necessary lateral bracing to provide adequate stability to the shoring system.

F. Provide cribbing where required to ensure sufficient distribution of forces into the supporting elements. If more than one layer of cribbing is required, each successive layer shall be placed perpendicular to the preceding layer.

G. Protect shoring from vehicle and/or equipment damage and barricade for pedestrian safety.

3.3 INSPECTION

A. Inspect shoring on a daily basis at a minimum. Inspect more frequently if operations dictate. Maintain and adjust where necessary.

3.4 REMOVAL

A. Remove shoring only after safe completion of the repair.

END OF SECTION

SECTION 02 41 19

SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Furnish all labor, materials, tools, and equipment and perform all Work necessary for and incidental to the selective demolition as shown on the Drawings and specified herein and completely coordinated with the Work of all other trades. This may include, but is not limited to, the following:

1. Selective demolition of interior plaster and gypsum board finish to install repairs.
2. Removal of the northeast blockhouse roof.
3. Partial removal and reinstallation of the northeast blockhouse stone at walls.
4. Removal of interior finishes to perform repairs.
5. Removal of wood roof cladding to perform repairs.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, general demolition waste (non-significant items) becomes property of Contractor. Unique decorative or significant original items remain property of the Iowa DNR.

1.3 FIELD CONDITIONS

A. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

B. Storage or sale of removed items or materials on-site is not permitted.

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate, and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

D. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

2. Do not remove previously installed shoring or reinforcement until new shoring is in place and/or permanent repairs are complete.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions.

2. Owner will arrange to shut off indicated services/systems when requested by Contractor.

3.3 PREPARATION

A. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.

3. Cover and protect furniture, furnishings, and equipment that have not been removed.

B. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by repairs and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering, and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
5. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
6. Locate selective demolition equipment and systematically remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
7. Dispose of demolished items and materials promptly.

B. Reuse of Building Elements: Do not demolish building elements beyond what is indicated on Drawings without Architect's approval.

C. Removed and Salvaged Items:

1. Refer to Specification Section 04 03 40.10 Dismantling Historic Materials.

D. Removed and Reinstalled Items:

E. Refer to Specification Section 04 03 40.10 Dismantling Historic Materials. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect or indicated on drawings, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Wood Cladding and Framing: Demolish in sections. Remove non-load-bearing members and all ancillary fasteners. Non-load-bearing members consist of members that are cut through or do not contribute to the load-carrying capability of the framing. Consult Architect before removing any members that may be load-bearing.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts. For exposed masonry or toothed in repairs, cut along existing mortar joints only.

C. Plaster: Demolish in sections. Cut perimeter of repair area with horizontal or vertical cuts. Do not cut supporting framing members or backup.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.

1. Do not allow demolished materials to accumulate on-site.
2. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Disposal: Transport demolished materials and dispose of at spoil areas designated by Owner.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 04 01 27

JOINT POINTING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes repointing of limestone masonry and CMU as shown on the Drawings.

B. Related Sections include the following:

1. Section 04 01 40.91 – Stone Restoration
2. Section 04 05 01 – Masonry Mortar and Grout
3. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

A. Except as modified by the Project Specifications, applicable portions of the following reference standards shall govern the work. All standards latest edition as of the date of the Specifications:

1. American Society for Testing and Materials (ASTM)
   a. C144 - Specifications for Aggregate for Masonry Mortar
   b. C150 - Specifications for Portland Cement
   c. C207 - Specifications for Hydrated Lime for Masonry Purposes
   d. C270 - Specifications for Mortar for Unit Masonry
   e. C780 - Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
   f. E2260 - Standard Guide for Repointing (Tuckpointing) Historic Masonry
2. Brick Institute of America (BIA)
   a. BIA Technical Notes 8A - Standard Specification for Portland Cement-Lime Mortar for Brick Masonry, BIA Designation M1 (with exception of sand gradation requirement).

1.3 DEFINITIONS

A. In-situ mortar: Existing mortar including original setting mortar, pointing mortar and subsequently installed setting and repointing mortar.

B. Original mortar: Mortar used in the original construction of the masonry wall.

C. Original pointing mortar: Mortar placed into a joint at the exposed outer edge from which fresh setting mortar is raked out during original construction of the masonry wall.

D. Point: The act of placing mortar into a properly prepared joint.

E. Repointing: The process of removal of hardened pointing mortar from between masonry units to a depth less than 1/3 of the depth of the units and placement of fresh mortar.

F. Setting mortar: Mortar used in original construction to act as a leveling and bonding agent for the masonry units.

G. Thumbprint hard: Mortar that has reached an initial set. Time required to achieve initial set varies based on masonry characteristics, weather conditions and mortar.

H. Tuckpointing: Synonymous with repointing.

I. Low-Pressure Spray: 100 to 400 psi.

J. Very Low Pressure Spray: less than 100 psi

1.4 QUALITY ASSURANCE

A. Contractor Qualifications: Engage an experienced masonry restoration firm to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful in-service performance.

1. Contractor: Must have a minimum of five (5) years' experience in construction and supervision of masonry work.

2. Masons: Must have a minimum of five (5) years' experience in the installation of repointing mortar. Apprentices must be fully supervised by an experienced tradesman.

B. Initial samples for selection of color and texture. Prepare at least five (5) samples of mortar, installed between sample masonry units off the building, to demonstrate a range of color and texture, for selection by Owner and Architect/Engineer.

C. Mock-up: Prepare mock-ups of repointing to demonstrate aesthetic effects and qualities of materials and execution. Prepare mock-ups on existing walls under same weather conditions to be expected during remainder of the Work.

1. Prepare two mock-ups of repointing work in stone masonry for each building. One mock-up shall demonstrate typical repointing and one mock-up shall demonstrate deep repointing. Each mock-up shall be minimum 4 square feet and showing the various stages of the repointing process; joint preparation, backing, lifts, and final pointing.

2. Locations of mock-ups will be selected by Architect/Engineer in consultation with Contractor.

3. Preparation and pointing samples shall be prepared by qualified personnel who will be performing the work. Before work commences, the sample shall be approved by Owner and Architect/Engineer. The approved sample shall be the standard for the work.
   a. Sample shall match existing joint profile, mortar color, and finishing.
   b. Include a sample of removing mortar and preparing joints. Rake out joints in two separate areas and repoint one of the two areas.
   c. Allow samples to cure a minimum of 14 days prior to Architect/Engineer's review.

4. Retain acceptable areas of preparation and pointing in undisturbed condition, suitably marked, during restoration as a standard for judging completed work.

5. Approved mock-ups may be incorporated into the work upon completion.

D. Field Quality Control: Work in place shall be subject to inspection testing. Work found to be unacceptable shall be replaced with new, acceptable work.

1.5 PROJECT CONDITIONS

A. Cold-Weather Requirements: Do not perform repointing when the ambient air temperature is less than or is expected to be less than 40 degrees Fahrenheit.

B. Hot-Weather Requirements: Do not perform repointing when the ambient air temperature is greater than 90 degrees Fahrenheit.

PART 2 PRODUCTS

2.1 MORTAR MATERIALS

A. Refer to Section 04 05 01 - Masonry Mortar and Grout for materials.

2.2 MORTAR MIXES

A. Refer to Section 04 05 01 - Masonry Mortar and Grout for materials.

PART 3 EXECUTION

3.1 PROTECTION

A. Wall Covering:

1. Cover exterior wall when Work is not in progress in ground-out areas that have not yet been fully repointed
2. Extend cover minimum of 24 inches beyond each side of the openings in walls.
3. Hold cover securely in place without damaging existing building materials.

B. Prevent mortar from staining face of surrounding masonry and other surfaces.

1. Cover sills, ledges, and projections to protect from mortar droppings. Do not extend coverings into mortar joints.
2. Keep wall area wet below pointing work to discourage mortar from adhering.
3. Immediately remove mortar in contact with exposed masonry and other surfaces.
4. Clean mortar splatters at end of each day.

3.2 MORTAR MIXING

A. Except as specified herein, mix in accordance with requirements of BIA M1.

B. Control batching procedure to ensure proper proportions by measuring materials by volume with known volume containers.

C. Do not measure mortar materials by shovels.

D. Pre-hydrate mortars thoroughly, mixing all ingredients except water; then, mix again, adding only enough water to produce a damp unworkable mix which will retain its form when pressed into a ball. After keeping mortars in this dampened condition for 1 to 1-1/2 hours, add sufficient water to bring it to the proper consistency; that is, somewhat drier than conventional masonry mortars.

Do not use mortar if more than 2-1/2 hours have elapsed since the addition of water for pointing consistency.

3.3 TYPICAL POINTING MASONRY

A. Rake out and repoint mortar joints as indicated on the Drawings.

B. Contractor shall provide dust collection systems in accordance with local, state, and federal guidelines during mortar removal and joint preparation activities.

C. Rake out joints as follows:

1. Remove mortar from joints to depth of twice the width of the joint, but not less than that required to expose sound, unweathered mortar. If unsound mortar extends more than 2 inches from the face of the units, notify Architect/Engineer before proceeding, deep repointing may be required at vertical head joints.

2. Remove mortar from masonry joint surfaces to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.

3. Do not spall edges of masonry units or widen joints. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and mallet. Quality-control program shall include provisions for demonstrating ability of operators to use tools without damaging masonry.
   a. "Half moons" created by grinders in head joints will not be allowed.

D. Notify Architect/Engineer of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, and wood, metal, and other deteriorated items observed in joints during preparation.

E. Repoint joints as follows:

1. Blow loose mortar out prepared joints with compressed air.

2. Rinse masonry-joint surfaces with potable water to remove residual dust and mortar particles. Minimize the quantity of water applied at the building interior. Time rinsing application so that at the time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen masonry joint surfaces before pointing.

3. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.

4. After deeper areas have been filled to same depth as typical areas, point all joints by placing mortar in layers not greater than 1/4 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry has worn or rounded edges, slightly recess finished mortar surface from face of masonry to avoid wider joints. Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

5. Tool joints to a concave profile. Remove excess mortar from edge of joint by brushing.

6. Match finished surface texture of adjacent existing mortar indicated to remain.

F. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours including weekends and holidays.

1. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

G. Where repointing of masonry abuts existing windows, flashings, roofing, or other exterior systems, replace elastomeric joint sealant at all perimeter joints after new mortar has cured.

3.4 DEEP POINTING MASONRY

A. At locations where an extensive length of the mortar is missing or unsound the full depth of the joint, deep repointing may be required.

B. Rake out and repoint mortar joints as indicated on the Drawings.

C. Contractor shall provide dust collection systems in accordance with local, state, and federal guidelines during mortar removal and joint preparation activities.

D. Rake out joints as follows:

1. Grind out all joints and remove unsound mortar.

2. Remove mortar from masonry joint surfaces to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.

3. Do not spall edges of masonry units or widen joints. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and mallet. Quality-control program shall include provisions for demonstrating ability of operators to use tools without damaging masonry.
   a. “Half moons” created by grinders in head joints will not be allowed.

E. Repoint joints as follows:

1. Blow loose mortar out prepared joints with compressed air.

2. Rinse masonry-joint surfaces with potable water to remove residual dust and mortar particles. Minimize the quantity of water applied at the building interior. Time rinsing application so that at the time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen masonry joint surfaces before pointing.

3. Install backing materials such as closed cell backer rod at the back edge of the stone at joints. Size backing material to fit snuggly in the joint.

4. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.

5. After deeper areas have been filled to same depth as typical areas, point all joints by placing mortar in layers not greater than 1/4 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry has worn or rounded edges, slightly recess finished mortar surface from face of masonry to avoid wider joints.

Take care not to spread mortar over edges onto exposed masonry surfaces or to featheredge mortar.

6. Tool joints to a concave profile. Remove excess mortar from edge of joint by brushing.

7. Match finished surface texture of adjacent existing mortar indicated to remain.

F. Cure mortar by maintaining in thoroughly damp condition for at least 72 hours including weekends and holidays.

1. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.

2. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.

G. Where repointing of masonry abuts existing windows, flashings, roofing, or other exterior systems, replace elastomeric joint sealant at all perimeter joints after new mortar has cured.

3.5 FINAL CLEANING

A. Wipe excess mortar from masonry surface adjacent to mortar joint with a damp sponge or cloth, at all interior and exterior repointing areas. Note: Use only sponges or cloth that is damp, not wet or saturated. When tightly squeezed water should not run from damp sponge or cloth. Surface of the masonry shall not have visible accumulation of water immediately following cleaning. Do not touch or disturb newly installed pointing mortar during cleaning. Clean until mortar and mortar haze is removed from adjacent masonry surfaces.

B. Upon completion of repointing, thoroughly rinse surfaces of exterior walls at repointed areas to remove dust and other surface residue from repointing process. Use only low pressure (less than 100 psi) water rinse.

C. After mortar has fully cured, thoroughly clean exposed exterior wall surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or fiber brushes, and clean water, spray applied at low pressure.

1. Do not use metal scrapers or brushes.

2. Do not use acidic or alkaline cleaners.

D. Sweep and rake adjacent pavement and grounds to remove masonry debris. Where necessary, pressure wash surfaces to remove mortar, dust, dirt, and stains.

END OF SECTION

SECTION 04 01 40.91

STONE RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Repair of existing stone units in place.
   2. Removal and reinstallation of stone units where indicated in the Drawings
   3. Repointing of stone units at locations designated on Drawings.
   4. Structural modifications of stone walls to be repaired as designated on Drawings.

B. Related Sections:
   1. Section 02 01 11 – Shoring
   2. Section 02 41 19 – Selective Structural Demolition
   3. Section 04 01 27 – Joint Repointing
   4. Section 04 05 01 – Masonry Mortar and Grout
   5. Section 07 92 00 – Joint Sealants

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
   1. Review methods and procedures related to removing and reinstalling historic stone masonry.

1.3 ACTION SUBMITTALS

A. Product Data: Manufacturer's literature including material properties for each type of new or replacement masonry unit, stone, attachment, anchor, expansion joint stabilizer, and reinforcement.

B. Shop Drawings:
   1. Plan indicating layout of supplemental anchorage and expansion joints.
   2. Elevation indicating locations of new steel lintels, supplemental anchorage, and expansion joints.
   3. Shop drawings showing fabrication of steel lintel and angles and fabrication of stone.

C. Samples:
   1. Repair Mortar: One briquette at least 3 inches long by 1 1/2 inches wide, for each type of repair mortar. Include manufacturer and stock number or other information necessary to order additional material for each sample. Samples will be compared with small area of cleaned existing stone.

D. Field Quality Control: Log table for each stone repair type with date and location of each repair and batch number of repair material used.

E. Repair Program: For each phase of repair process, provide detailed description of materials, methods, equipment, and sequence of operations to be used, including protection of surrounding materials on building and Site.
   1. If materials and methods other than those indicated are proposed, provide written description, including evidence of successful use on comparable projects and testing program to demonstrate their effectiveness for Project.
   2. Contractor: Submit comprehensive quality-control program indicating means and methods and related quality control procedures during installation.

1.4 INFORMATIONAL SUBMITTALS

A. Qualifications:
   1. Contractor: Evidence that Contractor's existing company has minimum ten years of continuous experience in similar stone restoration work; list of at least five representative, successfully-completed projects of similar scope and size, including:
      a. Project name.
      b. Owner's name.
      c. Owner's Representative name, address, and telephone number.
      d. Description of stone restoration work.
      e. Project supervisor.
      f. Total cost of stone restoration work and total cost of project.
      g. Completion date.

1.5 QUALITY ASSURANCE

A. Qualifications:
   1. Contractor: Experienced firm that has successfully completed stone restoration work similar in material, design, and extent to that indicated for the Project. Must have successful construction with specified materials in local area in use for minimum of ten years.

B. Mockups: Prepare mockups of historic treatment to demonstrate aesthetic effects and to set quality standards for materials and execution and for fabrication and installation.
   1. Stone Crack Repair. Preparation of stone crack and application of grant repair.
   2. Stone Anchor. Installation, drilling, and preparation of each type of supplemental stone anchors, installation of anchors, and patching of anchor holes.
   3. Sealant/ Mockup showing sealant application with broadcast sand at vertical surface.
   4. Repointing: Refer to Section 04 01 27 Joint Repointing.

1.6 PROJECT CONDITIONS

A. Prevent overfilling and overflowing of mortar and grout within the wall cavity. Install mortar and grout within the wall only at areas where there is a contained and visible void within the wall. Monitor locations where mortar and grout are installed within the cavity of the wall. Prevent seepage of grout or mortar into areas of the wall they are not visible or cannot be contained.

B. Prevent concrete, grout, mortar, soil, or other adjacent/associated materials from staining historic fabric. Remove any droppings in contact with the fabric immediately. Protect all adjacent, existing elements and surrounding areas from droppings or damage associated with reassembly.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Store as recommendations by stone supplier.

C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which have been exposed to moisture to their detriment.

D. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Remove from Site, and replace at no cost to Owner, any materials that are damaged or otherwise negatively affected by not being stored or handled in accordance with manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MASONRY MATERIALS

A. Stone Matching Existing: Stone to be used at walls to be restored shall be salvaged stone from dismantled wall of the Northeast Blockhouse, where possible. Larger stone replacements, if necessary, may require new stone. Refer to Section 04 96 50 - Reassembly of Historic Materials for new stone specification. Provide natural building stone of variety, color, texture, grain, veining, finish, size, and shape to match existing stone.

2.2 MORTAR MATERIALS

A. Refer to Section 04 05 01 - Masonry Mortar and Grout.

2.3 MORTAR MIXES

A. Refer to Section 04 05 01 - Masonry Mortar and Grout.

2.4 ACCESSORY MATERIALS

A. Stone Anchors and Pins: Type and size indicated. Fabricate anchors and pins from Type 304 stainless steel.

B. Setting Buttons and Shims: Resilient plastic, nonstaining to stone, sized to suit joint thicknesses and bed depths of stone units, less the required depth of pointing materials unless removed before pointing.

C. Hardware:
   1. Corner Reinforcement:
      a. Materials:
         1) Stainless steel rods: ASTM A580/A580M, Type [304].
      b. Manufacturer
         1) Stitch-Tie Bar (6mm diameter) by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.

2) Grout: SureGrout S (3900 psi / 27.5 Mpa) by Sure CPS.
3) Approved Equal

2. Expansion Joint Stabilizer
   a. Material
      1) Stainless steel, Type 304
   b. Manufacturer
      1) Expansion Joint Stabilizer by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
      2) Approved Equal
3. Wall Ties and Anchors
   a. Materials:
      1) Stainless steel, Type 304
   b. Horizontal Truss-Type Reinforcing
      1) Tie-HVR 195V Truss Anchor System for Rubble Stone by Brok-Lok, 12 Ashbridge Circle, Woodbridge, Ontario, Canada L4L 3R5, 1-800-561-3026.
      2) Approved Equal
   c. Lateral Wall Ties
      1) 345-BT Flexible Tie by Hohmann & Barnard, Inc. 150 Motor Parkway Suite 410 Hauppague, NY 11788, 800-645-0616
      2) Approved Equal
4. Reinforced Grouted Helical Anchors
   a. Materials:
      1) Stainless steel wire: ASTM A580/A580M, Type 304
      2) Grout: BS EN 998-2
   b. Manufacturer
      1) Grout Tie by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
         a) 8mm Stitch-Ties by PROSOCO, Inc
         b) SureGrout S (3900 psi / 27.5 Mpa) by Sure CPS.
      2) Approved Equal.
5. Injection Grout Sock Anchor
   a. Materials:
      1) Stainless steel rod: ASTM A276, Type 304.
      2) Grout: BS EN 445, 446, 447, 196-1, and 196-3
   b. Manufacturer
      1) Heavy Duty Sock (HDS) Anchor by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
         a) HDS Anchor by PROSOCO, Inc.
         b) HDS Single component grout (9430 psi / 65 N/mm2) by PROSOCO, Inc
      2) Approved Equal

D. Shims: High-density polyethylene, such as Korolath; thickness as required.

PART 3 - EXECUTION

3.1 PROTECTION

A. Prevent mortar from staining face of surrounding stone and other surfaces.
   1. Provide temporary rain drainage during work to direct water away from building.

3.2 STONE HARDWARE

A. Follow all up to date manufacturer's installation instructions.
   1. Corner Reinforcement
      a. Grind away existing mortar. Grind existing mortar 1-1/2" to 2" in depth and clean with water prior to installation.
      b. Apply a bead of compatible grout at the base of the ground joint. Grout preparation: Mix the two-part, ready-to-mix packs of powder with the provided admixture. Pour the liquid into the pail provided, pour the powder slowly into the pail, and mix with a paddle mixer for a full 2 minutes, ensuring that the powder is completely blended. (No additional water or powder should be added.) Once mixed, the grout is ready to be used and has a usability time of 45 minutes. Cover pail from direct sunlight.
      c. Insert Stitch-Tie Bar into bead of SureGrout S.
      d. Apply second/third bead of SureGrout S over Stitch-Tie Bar, and compact with appropriate trowel.
      e. If additional reinforcing Stitch-Tie Bar is required, as determined by the A/E, repeat steps 3 & 4. Compact with trowel when complete and allow enough room in slot to repoint with mortar, minimum 1 inch.
   2. Expansion Joint Stabilizer
      a. The placement of the assembly will require the removal of existing mortar in order to create a pocket for the Expansion Joint Stabilizer.
      b. Properly prepare the pocket to bed the assembly in a compatible mortar.
      c. Point and finish the concealed device after installation.
   3. Reinforced Grouted Helical Anchors
      a. Drill hole to the required depth and clean with water.
      b. Fill the grout gun and nozzle with the SureGrout S and insert the nozzle into the back of the drilled hole.
      c. Pump the grout into the hole, while retracting the nozzle as pressure is built up.
      d. Insert the helical anchor while spinning clockwise into the grout-filled hole.
   4. Injection Grout Sock Anchor:
      a. Mark the entry points as specified by the engineer and drill to the correct depth and diameter using a core drill to the specified diameter pilot hole size.
      b. Ensure all drill dust and drill debris is removed from the pilot holes using a suitable air pump.
      c. For short anchors, lightly spray the drilled pilot hole with clean water to maximize grout adhesion and facilitate a gradual and even grout cure. (Long anchors to be primed with water after assembly and insertion in the wall system).
      d. Screw the blanking plug and washer into the end of the last HDS anchor until it bottoms and is snug tight. Couple together the standard 6", 10", 20", or 40" lengths together till they reach the specified length. Insert the assembled anchor into the drilled hole. Note: do not force or twist the anchor as it is being pushed in to prevent damage to the fabric sock material.
      e. Once the required depth is achieved, attach the supplied hose from the HDS Anchor Component Kit to the exposed end. Once all anchors are installed, mix the grout.
      f. To mix the grout, add the appropriate amount of water first, then the powder and mix well using a paddle, until a very fluid but creamy uniform consistency is created. Always maintain the correct working ratio, as per the manufacturer's instructions. (6-7 liters maximum of water for each 20kg (44 lb) bag). CUSTOMER CARE 800-255-4255 // PROSOCO.COM 8
      g. Pour the mix into a pressure pot or appropriate grout gun. Set the maximum pressure to 44 psi.

h. Once ready to fill, slip a clamp from the HDS Grout Fill Kit over the exposed hose, then push fit the provided pipe into the open end and proceed with pumping.
i. The HDS Sock Anchor system is back-filled, expanding the reinforced mesh sock to completely fill any voids, providing a permanent cementitious fixing to the surrounding masonry.
j. When the sock has been fully inflated, milk grout gently runs from the anchor indicating that it's full.
k. Maintaining the pressure at this stage forces the milk grout further into the surrounding material and minimizes shrinkage. As it cures, the high-performance grout firmly secures the helical bars and structural core tubing to create a single structural entity that resists shear, compressive, and tensile forces.
l. After a few minutes, fasten the clamp before turning off the compressor. It is advisable to remove the hose from the threaded tube 2-3 hours after installation. Wash any excess grout off with clean water, then fill the holes with a color matched mortar or other specified patching compound.

3.3 REPOINTING MORTAR JOINTS

A. Refer to Section 04 -1 27.

3.4 STONE CRACK REPAIR

A. Refer to Section 04 03 15 – Reassembly of Historic Materials

3.5 FINAL CLEANING

A. After mortar has fully hardened, thoroughly clean exposed stone surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water applied by low-pressure spray.
   1. Do not use metal scrapers or brushes.
   2. Do not use acidic or alkaline cleaners.

END OF SECTION

SECTION 04 95 50

DISMANTLING HISTORIC MATERIALS

PART 1 GENERAL

1.1 SUMMARY

A. Description of Work: Section includes dismantling of building elements noted on Drawings for storage, repair, and reinstallation.

B. Historic building elements are unique and valuable in nature. In accordance with the Secretary of the Interior's Standards, original building fabric is to be conserved when possible.

1.2 DEFINITIONS

A. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by the Architect.

B. Reconstruct: To remove existing item, replicate damaged or missing components, and reinstall in original position.

C. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

D. Reinstall: To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.

E. Remove: Specifically for historic spaces, areas, rooms, and surfaces, the term means to detach an item from existing construction to the limits indicated, using hand tools and hand-operated power equipment, and legally dispose of it off-site, unless indicated to be salvaged or reinstalled.

F. Repair: To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

G. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

H. Replicate: To reproduce in exact detail, materials, and finish, unless otherwise indicated.

I. Reproduce: To fabricate a new item, accurate in detail to the original, and in either the same or a similar material as the original, unless otherwise indicated.

J. Restore: To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.

K. Retain: To keep existing items that are not to be removed or dismantled.

L. Reversible: New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials, unless otherwise indicated.

M. Salvage: To protect removed or dismantled items and deliver them to Owner ready for reuse.

N. Stabilize: To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.

1.3 SUBMITTALS

A. Prior to commencement of any dismantling operations the following items are to be submitted and approved by the Owner and A/E of record:

1. Schedule for proposed activities showing each activity for any and all separate areas. The schedule should include an estimated duration for each activity.

2. 100% Survey: A full survey of the items scheduled for dismantling is to be undertaken at least 14 days prior to deconstruction efforts. A logical and thorough labeling system is to be developed. The system is to identify each piece so that it can be easily and rationally reconstructed and its original location can be established:
   a. The observations are to be transferred to elevations or plans of the area(s) which ACCURATELY depict the areas and show the correct number and size of the pieces as they are at the start of the process. Each piece is to be shown on the plans and survey notes are to include any cracking, staining, spalling, or similar irregularities in the items being dismantled.
   b. Photographs are to be taken of EACH piece being dismantled. The photograph should include the individual label for that item visible in the photograph. Several photographs of each items may be included if one photograph is insufficient to record the existing conditions thoroughly. Additional overall photographs shall be included. Photographs shall show the dismantled elements in relation to the rest of the structure(s).
   c. Measurements of the size of the structure including length, height and depth.

B. Samples:

1. Submit samples of labels, boxes, marking materials, and labeling methodology for review by the A/E and the Owner.

C. Procedures:

1. Submit a detailed plan of the dismantling operations which shall include the sequencing, duration, tools and equipment utilized for each element to be dismantled.

2. Cataloguing procedure shall be described.

D. Storage Plan:

1. Identify the types of crates or boxes that will be used to store building elements.

2. Identify the location where elements will be stored.

3. Describe the conditions (weather, temperature) that the elements will be subjected to during storage.

E. Inventory:

1. After dismantling operations are complete, submit an itemized list of objects that have been removed and stored. A full count of the number of individual items shall be included as well as the number of boxes or crates that have been utilized. Crates and boxes shall be

identified with a number as well as an object or location reference so that storage boxes do not need to be opened, disturbed, or moved in order to identify the contents. Labeling of crates shall occur on all sides (except the bottom).

1.4 QUALITY ASSURANCE

A. Refer to the following standards.

1. ANSI 10.6 a.
2. Indiana Limestone Institute of America, Inc. Handbook.
3. ASTM C97 Standard Test methods for Absorption and Bulk Specific Gravity of Dimension Stone.
4. ASTM C170 Standard Test Method for compressive Strength of Dimension Stone.
5. ASTM C1242 Standard Guide for Selection, Design, and Installation of Exterior Dimension Stone Anchors and Anchoring Systems.

1.5 QUALIFICATIONS

A. The contractor selected to undertake dismantling operations shall have a minimum of 5 years of experience undertaking work that is of similar scale, magnitude, and components. DUE TO HISTORIC SIGNIFICANCE OF THE PROPERTY, contractor shall demonstrate experience with similar projects of the same vintage and complexity.

B. Stone Masons: Minimum of 5 years' experience in rubble stone masonry construction and repair and shall have successfully completed three projects similar in scope to the work of this project within the last three years.

1.6 STORAGE

A. Verify adequacy of support or portion of the structure for loading with equipment and materials. Storage of large amounts of stone panels and other materials on the roof or other structures is not permitted.

B. Use non-staining skids outlined in Section 2.

C. Store stone above grade on wood or other suitable surface using polyethylene film to separate stone from wood or other supporting or protecting members.

D. Protect materials during storage and construction. Keep containers tightly closed and away from damage. Ensure that stored elements are protected from UV bleaching/discoloration.

E. Cover stone with waterproof paper, clean canvas or polyethelene.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Use small handheld tools wherever and whenever possible.

B. Do not use heavy equipment or equipment which will cause vibration either within or at close proximity to occupied spaces.

C. Drill for anchors shall preferably be high speed rotary percussion drill (3 jaw chuck type). Hammer drills shall not be used for drilling activities.

D. Storage Containers:

E. For large crates, use skids made of low resin cypress, white pine, poplar or yellow pine that are non-staining. Do not use chemically treated wood. Do not use chestnut, walnut, oak, fir and other woods containing tannin or other substances that may stain the stone.

1. Store materials above grade on wood or other suitable surfaces using polyethylene film to separate stone from wood or other supporting or protecting members.

2. Each element is to be separated from other individual pieces/elements via wood planks, rigid insulation, or similar sound durable materials that will not stain the materials and that will prevent scarring, chipping, scratching, crushing or other ill effects from materials placed adjacent to, above or below it.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work.

B. Examine adjacent surfaces to determine necessary protective measures that should be employed.

C. Make explorations, probes, and inquiries as necessary to determine the conditions of construction in elements to be removed or dismantled.

D. Determine location of all existing utilities and service lines that are to remain, be relocated or are hidden:

1. Verify that affected utilities have been disconnected and capped.

2. Relocate all utilities that interfere with work and assure that they are operational before proceeding with dismantling activities.

E. Determine location of all archaeological site protection zones. Refer to Specification Section 01 35 13.22 Site Preparation Protection for work around and within these zones.

3.2 DISMANTLING

A. General:

1. Prior to work, shore adjacent wall and roof areas, as necessary, to perform repairs.

2. Dismantle components of existing facades after recording and detailing on historic survey documentation:
   a. Handle cracked or damaged material with care to avoid additional damage. Retain and label pieces of broken units and crate them together.

b. Carefully remove mortar and other debris by hand.
c. Do not use chemicals, power tools or extreme force or leverage.
d. Remove items in the reverse order from which they were installed.
e. Do not remove items that support or frame other items before those items are removed first.

3. Fasteners and Shutters:
   a. Remove fasteners, shutters, and hardware unless removal will damage historic fabric.
   b. Retain and label these items that will be reinstalled or replaced and crate it with the corresponding element from which they were removed.

4. Provide continuous and sufficient support and reinforcement for existing construction that may become unstable, overstressed, or weakened as a result of the dismantling efforts.

5. Tools:
   a. Use only tools that have been approved in the submittals.
   b. When using pry bars or wedges, protect the exposed surfaces of the material so as not to damage or otherwise mark the surfaces.
   c. Pry surfaces from back side whenever possible.

6. If any distress of the historic fabric or adjacent elements is observed, immediately cease work activities and stabilize or support the piece. Record all damage, notify the A/E and propose corrective action.

B. Dismantling of Stone:

1. Dismantle stone in individual pieces, in the reverse order from which they were installed.

2. Dismantle top edge and sides before removing wall units. Stop work immediately and inform A/E if any structural elements above or adjacent to the work show signs of distress or dislocation during any phase of the work.

3. Fully support individual pieces so as not to induce bowing, cracking or other deleterious effects due to unsupported conditions.

4. Remove mortar by hand.

5. Salvage metal attachments and anchors.

C. Labeling:

1. Label each face wythe unit in accordance with submitted and approved plan and note the unit on survey sheets. Rubble stone fill between wythes should be salvaged for reuse but does not require labeling of each piece.

2. Use a lumber (waxy) crayon or similar brightly colored permanent device to mark the unexposed surfaces of the individual units for reinstallation at a later date.

D. Crating:

1. Crate materials on the same day they are dismantled.

2. Utilize non-staining protective padding for use between individual elements.

3. Provide blocking and proper packaging so as to fully support and confine the units and to prevent shifting during transport.

4. Crate materials together that were removed from the same area.

5. Crate anchors, support materials or similar items in the same crate as the primary piece.

6. Label crates on at least two, but preferably four sides with permanent marker. Do not use a label that attaches or adheres to the crate. Label crate material directly and permanently.

E. Transportation:

1. Load crates onto truck, trailers, or flat beds.
2. Brace and secure materials to prevent movement and shifting during transport.
3. Transport materials to storage facility on a regular periodic basis that does not allow for the materials to encumber the site nor remain exposed and prone to consequential damage from other construction activities.

F. Storage:

1. Store materials at a protected site approved by the Owner and A/E.
2. Organize storage so that reassembly is easily facilitated and crates will not need to be removed to access crates that are earlier in the reconstruction sequence.
3. Store crates at least 4 inches above the ground or floor line.
4. If stone is stored off site, during transport:
   a. Load crates onto truck, trailers, or flat beds.
   b. Brace and secure materials to prevent movement and shifting during transport.
   c. Transport materials to storage facility on a regular periodic basis that does not allow for the materials to encumber the site nor remain exposed and prone to consequential damage from other construction activities.

END OF SECTION

SECTION 04 05 01

MASONRY MORTAR AND GROUT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Supply and preparation of mortar for stone rebuilding and repointing.
2. Supply and preparation of mortar for stone and CMU repointing.
3. Supply and preparation of leveling grout at lintels, piers of roof, and sills under doors.
4. Supply and preparation of cement parge coating at stone sills.

B. Related Sections:
1. Section 04 01 27 – Repointing
2. Section 04 01 40.91 – Stone Restoration
3. Section 04 96 50 – Reassembly of Historic Materials
4. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

A. Reference Standards:
1. ASTM International
   a. C33 – Standard Specification for Concrete Aggregates
   b. C91 – Standard Specification for Masonry Cement
   c. C144 – Standard Specification for Aggregate for Masonry Mortar
   d. C150 – Standard Specification for Portland Cement
   e. C207 – Standard Specification for Hydrated Lime for Masonry Purposes
   f. C270 – Standard Specification for Mortar for Unit Masonry
   g. C780 – Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
   h. C1093 – Standard Practice for Accreditation of Testing Agencies for Masonry
   i. C1324 – Standard Test Method for Examination and Analysis of Hardened Mortar
   j. C1329 – Standard Specification for Mortar Cement
   k. C1586 – Standard Guide for Quality Assurance of Masonry Mortars
   l. C1714 – Standard Specification for Preblended Dry Mortar Mix for Unit Masonry
2. The Masonry Society (TMS):
   a. TMS 402/602 Building Code Requirements and Specifications for Masonry Structures, the latest edition as required by applicable Building Code.

1.3 DEFINITIONS

A. Existing mortar: Mortar present in existing construction.

B. Cement-lime mortar: A mortar containing only portland cement, lime, and sand with strictly no additives, except for pigments to produce a desired color.

C. Masonry cement mortar: A preblended product, consisting of a mix of portland or blended hydraulic cement, and plasticizing materials (such as limestone, hydrated or hydraulic lime)

together with one or more additives introduced to enhance certain properties such as setting time, workability, water retention, or durability. The maximum air content for Type N is 21 percent by volume (See ASTM C91).

D. Mortar cement mortar: A preblended product that meets all the requirements for masonry cement with the addition of a flexural bond strength requirement. The minimum twenty-eight day flexural bond strength for Type N is 70 PSI (See ASTM C1329).

E. Preblended cement-lime mortar: A factory-blended product containing only portland cement and lime with strictly no additives, except for pigments to produce a desired color. Sand may be included in the factory preblended product, depending on the regional customs and availability.

F. Repointing: Process of raking out mortar joint to specified depth and replacing mortar.

1.4 SUBMITTALS

A. Product Data: Supplier's literature indicating compliance with specified requirements. Include Safety Data Sheets (SDS) for information only.
   1. Pigments: Product name and type, and name of manufacturer.
   2. Preblended Mortar: Types and volumetric proportions of ingredients.

B. Certificates: Indicating compliance with specified requirements.
   1. Portland Cement: Product name and type, and name of manufacturer.
   2. Hydrated Lime: Product name and type, and name of manufacturer.

C. Test Reports: For aggregates, indicating type, gradation, impurities, and source.

D. Test Agency Qualification Data: Provide agency name and documentation of accreditation.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, directions for storing, and complete manufacturer's written instructions.

B. Store and handle materials in accordance with manufacturer's written instructions, safety requirements, and all applicable laws and regulations. Store materials in original, undamaged containers in clean, dry, location on raised platforms and protected from weather, within temperature range required by manufacturer. Protect stored materials from direct sunlight and sources of ignition. Manufacturer's standard packaging alone is not considered adequate weather protection.

C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, or handling. Discard any cementitious materials that have been exposed to moisture to their detriment.

D. Locate materials in a secure location approved by Owner's Representative.

E. Limit stored materials on structures so as to preclude damage to materials and structures.

F. Conspicuously mark damaged containers, containers with contaminated materials, damaged materials, and materials that cannot be used within stated shelf life and remove from Site as soon as possible. Replace discarded materials in a timely manner at no cost to Owner.

G. Maintain copies of all applicable SDS, to be available for ready reference on Site.

PART 2 PRODUCTS

2.1 MATERIALS

A. Mortar shall conform to ASTM C270 Type N. No masonry cements will be allowed.

B. Cementitious Materials (MASONRY CEMENTS WILL NOT BE ALLOWED)
1. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
2. Hydrated Lime: ASTM C207, Type S

C. Aggregates for Mortar and Parging
1. ASTM C144 except that the grading shall comply with the limits specified in Section 4.3 of BIA M1. Sand shall contain no more than 50 parts per million of chloride ions. Sand shall be free of organic contaminants.
2. For mortar and parging that are exposed to view, use washed aggregate consisting of natural sand or crushed stone.
3. For joints wider than 1 inch on average, us large-Aggregate Mortar: ASTM C33.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

D. Aggregates for Grout: ASTM C 404

E. Water
1. Clean and potable.
2. Free from deleterious amounts of acids, alkalis or organic materials.

F. Admixtures
1. No admixtures shall be used without written approval, unless otherwise specified.
2. No calcium chloride or admixtures containing calcium chloride shall be used in the mortar.
3. No air-entraining admixtures or material containing air-entraining admixtures shall be used in the mortar.

2.2 MORTAR AND GROUT MIXES

A. Mortar: Comply with ASTM C270, Proportion Specification. Match color of existing mortar. All mortar to have the following proportions by volume:
1. 1 part portand cement
2. 1 part hydrated lime
3. 6 parts sand

B. Portland Cement Parge
1. Slurry Coat
   a. 1 part cement
   b. 1 part sand
2. Parging
   a. Parging Mix:
      1) 1 part Portland cement,

2) 1 part lime,
3) 6 parts sand

b. Texture: Match existing parge coating.

C. Grout: ASTM C476; fine or coarse, based on parameters in Table 1.19.1 in TMS 402/ACI 530/ASCE 5 and Contractor experience. 1. Slump: 8 to 11 inches, measured according to ASTM C143/C143M.

PART 3 EXECUTION

3.1 SITE MIXING

A. Develop batching and mixing operations so that quality control is assured.

B. Designate one or two individuals to batch and mix mortar. Fully instruct these individuals on batching and mixing procedures. No other persons shall batch or mix mortar without prior notification to Architect/Engineer.

C. Maintain accurate mix proportions. Batch materials by volume with containers of known volume. Do not measure materials by shovel.

D. Combine and mix materials in appropriate drum-type batch machine mixer to uniform consistency.
1. Mix mortar for three to five minutes after materials are in mixer.
2. Provide sufficient number of mixers, including reserve mixers, so that mortar placement operations will proceed uninterrupted.
3. Hand-mixing is permitted upon prior written approval of Architect/Engineer.

3.2 REPOINTING MORTAR

A. Refer to Section 04 01 27 for repointing process.

3.3 READY-MIX GROUT

A. Measure, batch, mix, and deliver grout according to ASTM C94/C94M, and furnish batch ticket information.
1. Deliver grout to Site and discharge within 90 minutes or before 300 revolutions of mixer drum, whichever comes first, after introduction of mix water. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time to 75 minutes; when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes. Due to nature of Work, trucks with short loads may be required. Grout that exceeds specified time limit will be rejected.
2. Reject grout that arrives at Site with slump exceeding maximum specified slump.

3.4 PARGING AND GROUT PREPARATION

A. Examination of Substrate for Parging and Grout
1. Examine areas and substrates for compliance with requirements and other conditions affecting performance.
2. Examine conditions at surfaces where parge is to be installed. Verify that substrates to receive parge and grout have been repointed and are devoid of deep recesses, voids, or loose stone units and that all repointing and resetting mortar has fully cured.

3. Verify that areas and conditions under which Work is to be performed permit proper and timely completion of the Work.
4. Beginning of Work constitutes acceptance of conditions and substrates.

B. Preparation
1. Protection:
   a. Protect existing surfaces to remain, or adjacent finished surfaces from overflow or dripping of parging and grout during work. Clean and remove drippings and rundown from surfaces that are affected by pargework to the satisfaction of the Owner and Engineer/Architect and at no additional cost to the Owner.
2. Surface Preparation:
   a. Where present, remove any existing parge and waterproofing down to the substrate. Patch/repair existing damaged substrates.
   b. Clean substrates to receive pargework and remove deleterious substances and obstructions that might impair Work.

C. Application
1. Apply parge and grout to the thickness specified, measured from face of finished parge surface.
2. Grout:
   a. Use course grout in spaces with least dimension over 2 inches (50 mm). Use finer grout for smaller spaces.
3. Parge Coat:
   a. Apply parge to an entire surface with interruptions occurring only at openings.
   b. Apply parge coat to a minimum thickness of 3/8 inch, with sufficient pressure and material to ensure tight contact with substrate.
   c. Place parge coat before end of pot life. Stiffened parge shall not be retempered with additional water.
   d. Protect curing parge from direct sunlight and wind.
   e. Finish parging to provide continuous smooth surface sloped toward the exterior, 1/4 inch per foot minimum.

3.5 MORTAR FIELD QUALITY CONTROL

A. Testing Requirements:
1. Contractor to retain an independent testing agency that meets requirements of ASTM C1093.
2. Mortar: ASTM C780:
   a. At least two weeks prior to start of masonry Work, prepare a batch of mortar with the materials to be used for construction and allow testing agency personnel to make one set of nine cubes.
      1) Three cubes will be tested in compression at three, seven, and twenty-eight days.
      2) Test results will be used for comparison with field test results.
   b. Make one set of nine cubes at a random time each week during the Work, or at an interval determined by the Architect/Engineer.
      1) Three cubes will be tested in compression at three, seven, and twenty-eight days.
      2) Field test results should approximate or exceed results from preconstruction testing.
   c. Contractor to pay for retesting of materials failing to comply with the specified requirements.

B. Inspection Requirements:
   1. Contractor to verify daily by observation that the method of measuring material quantities accurately maintains the required proportions. Provide a log to the Architect/Engineer at the completion of the project indicating inspection of the mixing process.

END OF SECTION

SECTION 04 96 50

REASSEMBLY OF HISTORIC MATERIALS

PART 1 GENERAL

1.1 SUMMARY

A. Work of this Section includes the protection, transportation, and reassembly of disassembled historic materials at the Northeast Blockhouse. This scope includes:
   1. The installation of base, preliminary, or back-up materials in association with the reassembled materials.
   2. The supply and installation of materials to replace or repair historic fabric damaged during the dismantling, shipping, storage, reassembly, or associated procedures.
   3. The reassembly of the dismantled materials.
   4. Supply and installation of anchors, supports, clamps, frames, flashing, sealants, copings, and all associated elements.

B. Related Sections:
   1. Section 02 01 11 – Shoring
   2. Section 02 41 19 – Selective Structural Demolition
   3. Section 04 01 27 – Joint Repointing
   4. Section 04 01 40.91 – Stone Restoration
   5. Section 04 05 01 – Masonry Mortar and Grout
   6. Section 07 92 00 – Joint Sealants

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. C97: Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone.
   2. C99: Standard Test Method for Modulus of Rupture of Dimension Stone.
   3. C114: Standard Test Methods for Chemical Analysis of Hydraulic Cement.
   4. C119: Standard Terminology Relating to Dimension Stone.
   5. C144: Standard Specification for Aggregate for Masonry Mortar.
   6. C150: Standard Specification for Portland Cement.
   7. C170: Standard Test Method for Compressive Strength of Dimension Stone.
   8. C207: Specification for Hydrated Lime for Masonry Purposes.
   9. C568: Standard Specification for Limestone Dimension Stone.
   10. C880: Standard Test Method for Flexural Strength of Dimension Stone.
   11. C1354: Standard Test Method for Strength of Individual Stone Anchorages in Dimension Stone.
   12. F593: Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

B. The Masonry Society (TMS)
   1. TMS 602/ACI 530.1/ASCE 6

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to removing and reinstalling historic stone masonry.

1.4 SUBMITTALS

A. Product Data:

1. Submit manufacturer's data for each type of new or replacement masonry unit, stone, wood, attachment, anchors, expansion joint stabilizer, and reinforcement.

B. Shop Drawings:
1. Provide documentation of existing conditions prior to dismantlement. This includes an annotated elevation indicating a unique identification number for each exterior wythe stone unit indicating its size, condition, orientation, and preparation for reuse.
2. Include plans, elevations, sections, and locations of stone repair work on the structure.
   a. Sizes, sections, and dimensions of stone.
   b. Joint locations.
   c. Anchoring details.
   d. Other necessary details
3. Anchors: Include details of anchors within stone wall, with locations of new anchors and dimensions, directions, and angles of holes and recesses in stone.
4. Hardware Assemblies: Include details of assemblies.

C. Samples
1. Submit three samples of the following
   a. Each type of replacement stone. Stone must match existing original units. Provide samples finished to match cleaned existing stone units and demonstrating range of variations in stone appearance. Approved samples are for comparison of texture, finish, and color of new stone supplied for Project.
   b. Anchors, hardware, shims, and attachments for reassembling materials.

D. Mockups
1. Prior to delivery and installation of first pieces, install the following:
   a. Mockup of rebuilt wall section showing anchorage, construction of backup and rubble fill masonry, and reconstruction of exterior wythe including salvaged and new stone units.
   b. Mortar samples. Install at least 5 samples to match the existing in color, composition (mix design), and aggregate gradation. Allow to cure for a minimum of 10 days before obtaining A/E approval of match. Install mock up in close proximity to original material so that a comparison can be made between new material and original material.
   c. Crack repair. Minimum 6 inch length of unsanded grout crack repair.

1.5 INFORMATIONAL SUBMITTALS

A. Qualifications:
1. Contractor: Evidence that Contractor's existing company has minimum ten years of continuous experience in similar stone restoration work; list of at least five representatives, successfully-completed projects of similar scope and size, including:
   a. Project name.
   b. Owner's name.

c. Owner's Representative name, address, and telephone number.
d. Description of stone restoration work.
e. Project supervisor.
f. Total cost of stone restoration work and total cost of project.
g. Completion date.

2. Stone Fabricator: Evidence that Fabricator's existing company has minimum ten years of continuous experience in similar stone fabrication work; list of at least five representatives, successfully-completed projects of similar scope and size, including:
   a. Project name.
   b. Owner's name.
   c. Owner's Representative name, address, and telephone number.
   d. Description of stone fabrication work.
   e. Project supervisor.
   f. Total cost of stone fabrication work and total cost of project.
   g. Completion date.

B. Preconstruction Testing:
   1. Independent Testing Agency:
      a. Employ and pay for independent testing agency acceptable to Architect/Engineer and Owner's Representative.
      b. Testing agency shall submit test procedures to Architect/Engineer for review and approval prior to testing.
      c. Testing agency shall conduct and interpret tests and report test results to Contractor, Architect/Engineer, and Owner's Representative. Reports shall state whether or not test specimens conform to specified requirements and shall specifically noted deviations.
   2. New Stone: Unless noted otherwise, test 20 specimens total, as follows: five specimens each saturated/parallel to rift, saturated/perpendicular to rift, oven-dried/parallel to rift, and oven-dried/perpendicular to rift.
      a. Absorption and Bulk Specific Gravity: ASTM C97; test five specimens from each type of stone.
   3. Compressive Strength: ASTM C170.
   4. Modulus of Rupture: ASTM C99; for limestone and sandstone.
   5. Flexural Strength: ASTM C880; for granite and marble. Test specimens with job thickness and finish.

1.6 QUALITY ASSURANCE

A. Reassembled components shall match conditions indicated in original surveys as well as at the time of disassembly.

1.7 PROJECT CONDITIONS

A. Prevent concrete, grout, mortar, soil, or other adjacent/associated materials from staining historic fabric. Remove any droppings in contact with the fabric immediately. Protect all adjacent, existing elements and surrounding areas from droppings or damage associated with reassembly.

1.8 DELIVERY, STORAGE AND HANDLING

A. Arrange for materials to be delivered to the site in undamaged condition, clearly marked, in original storage containers and ready for inspection.

B. Store and handle stone to prevent deterioration or damage due to moisture, temperature changes, contaminates, corrosion or other causes. Limit moisture absorption of concrete masonry units during delivery and until the point of installation.

C. Store aggregates where grading and other required characteristics can be maintained.

D. Store masonry accessories to prevent deterioration, soiling, corrosion or galvanic reaction.

PART 2 PRODUCTS

2.1 MATERIALS

A. Historic fabric that has been dismantled and stored shall be used in the reassembly.

B. Salvaged Stone
   1. Salvaged units shall be cleaned to remove mortar, staining, dirt, and other contaminants before installation.

C. New Stone
   1. Stone Matching Existing: Natural building stone of variety, color, texture, grain, veining, finish, size, and shape that match existing stone.
   2. General Requirements
      a. New Limestone: Match the color, finish, and appearance of existing stone on building.
         1) Provide samples for accurate matching to existing stone in the field.
   3. Existing stone masonry is Fort Atkinson Limestone quarried on site. Potential replacement stone may include:
      a. Kasota Limestone
      b. Lannon Stone
      c. Mo-Keta Limestone
   4. Stone thickness shall match original.
   5. Physical Properties:
      a. Limestone: ASTM C568, medium-density with minimum modulus of rupture of 700 pounds per square inch; select grade based ILI Handbook.
         1) Coefficient of thermal expansion: 0.000003 inch/inch-degree F maximum.
         2) Ultimate shear strength: 900 pounds per square inch minimum.
         3) Stone thickness: Match existing.
   6. Finish: Match existing weathered condition of stone to remain. Stone supplier shall field-verify existing stone finish.

D. Mortar
   1. Section 04 05 01 – Masonry Mortar and Grout

E. Crack Repair Grout
   1. Grout: Low-viscosity cementitious grout intended for bonding cracks in stone. Use one of the following or Architect/Engineer approved equal:
      a. Laticrete 1500 Sanded Grout and 1600 Unsanded Grout, or approved equal.

b. Match color of grout to adjacent stone.

F. Hardware
1. General
a. Metal in contact with stone is to be non-corrosive.
2. Corner Reinforcement:
a. Materials:
1) Stainless steel wire: ASTM A580/A580M, Type 304.
b. Manufacturer
1) Stitch-Tie Bar (6mm diameter) by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
a) Grout: SureGrout S (3900 psi / 27.5 Mpa) by Sure CPS.
2) Approved Equal
3. Wall Ties and Anchors
a. Materials:
1) Stainless steel, Type 304
b. Horizontal Truss-Type Reinforcing
1) Tie-HVR 195V Truss Anchor System for Rubble Stone by Brok-Lok, 12 Ashbridge Circle, Woodbridge, Ontario, Canada L4L 3R5, 1-800-561-3026.
2) Approved Equal
c. Lateral Wall Ties
1) 345-BT Flexible Tie by Hohmann & Barnard, Inc. 150 Motor Parkway Suite 410 Hauppague, NY 11788, 800-645-0616
2) Approved Equal
4. Expansion Joint Stabilizer
a. Material
1) Stainless steel, Type 304
b. Manufacturer
1) Expansion Joint Stabilizer by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
2) Approved Equal
5. Reinforced Grouted Helical Anchors
a. Materials:
1) Stainless steel wire: ASTM A580/A580M, Type 304
2) Grout: BS EN 998-2
b. Manufacturer
1) Grout Tie by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
a) 8mm Stitch-Ties by PROSOCO, Inc
b) SureGrout S (3900 psi / 27.5 Mpa) by Sure CPS.
2) Approved Equal.
6. Injection Grout Sock Anchor
a. Materials:
1) Stainless steel rod: ASTM A276, Type 304.
2) Grout: BS EN 445, 446, 447, 196-1, and 196-3
b. Manufacturer
1) Heavy Duty Sock (HDS) Anchor by PROSOCO, Inc., (800) 255-4255, customercare@prosoco.com.
a) HDS Anchor by PROSOCO, Inc.
b) HDS Single component grout (9430 psi / 65 N/mm2) by PROSOCO, Inc
2) Approved Equal

G. MISCELLANEOUS HARDWARE
   1. Nuts, Washers, Lock Washers Type 304, ASTM 276.
   2. Shims
      a. Shim material
         1) High Density Polyethylene [Korolath]
         2) Stainless steel, Type 304
         3) Lead
         4) Wood shims shall not be used
         5) Plastic horseshoe shaped shims shall not be used
      b. Setting
         1) Thickness, as required
         2) Shims supporting the gravity load of the panel shall be continuous.
      c. Adhere together shim packs that resist forces in the plane of the shim, to form a monolithic shim in order to avoid slippage of shims.
   3. Thread Locking Compound
      a. Locking and sealing coating for threaded fasteners: ND Vibra-Tite Formula 3, manufactured by ND Industries, Troy, Michigan 48084.

2.2 WATER

A. Clean, potable water. Water used for prewetting, mixing, and rinsing must have an iron content of less than two (2) parts per million, or 0.0002 percent (by weight). Water to be used shall be sampled and tested for iron content prior to beginning work each {day, month, or year. Choose based on local water supply}.

2.3 MORTAR AND GROUT

A. Refer to Section 04 05 01 Masonry Mortar.

PART 3 EXECUTION

3.1 PREPARATION

A. Examine the base upon which the reassembled materials will be set. Do not proceed with installation until a satisfactory base and support condition are met.

B. Establish work points and set forth other construction aids as may be required as a guide to craftsmen.

C. Utilize survey documents and control elevations to ensure reassembled facades match exiting profiles, heights, including general joint thicknesses and profiles.

3.2 INSTALLATION

A. Unit Masonry
   1. Lay masonry true to dimensions, plumb, in line, properly anchored and with level courses accurately spaced to full thickness as indicated.

B. Setting Stone
   1. Match joints and coursing in dismantled sections with adjacent existing construction or to replicate original conditions.

2. Clean salvaged units of old mortar prior to installation. Do not shave the original material when removing the old mortar.
3. Provide temporary formwork as required.
4. Match joint profiles from original construction.
5. Rinse masonry surfaces with potable water to remove residual dust and mortar particles. Time rinsing application so at time of pointing, joint surfaces are damp but free of standing water.
6. Butter joints of outer and inner wythe of stone for full width before setting and set in a full bed of mortar.
7. Fill space between stone wythes with tightly fitted rubble stone set in full mortar setting bed.
8. Do not set units above until mortar in course below is sufficient to hold weight without extruding mortar from the joint.
9. Tool joints to the correct profile and to provide superior bond with adjacent masonry surface.
10. Do not disturb the mortar once tooling has been undertaken.
11. Completely fill anchor, dowel and similar holes.
12. Cure mortar by maintaining in a thoroughly damp condition for at least 72 hours.
13. Isolate dissimilar materials.
14. Salvage and reuse existing stone units. Replace stone units that are cracked or significantly deteriorated with new stone to match existing in general dimensions, shape, texture, and joint width.
15. Install stainless steel stitch ties and expansion joint stabilizers at mortar setting beds, 2 inch minimum from exterior face of stone and as indicated in Drawings.
16. Install stainless steel lateral ties between interior and exterior wythe of stone; 24 inches on center each direction, as indicated in Drawings. Use horizontal truss-type wire reinforcing with adjustable anchor system at areas where the full depth of the wall is rebuilt and adjustable veneer anchors where just the outer wythe of stone is being rebuilt.

3.3 STONE CRACK REPAIR

A. Grouted Crack Repair
   1. General
      a. Leave cracks less than 0.0625 inch in width unrepaired.
      b. Repair cracks between 0.0625 inch and 0.125 inch in width with unsanded grout.
      c. Repair cracks greater than 0.125 inch and up to 0.5 inch in width with sanded grout.
   2. Remove existing sealant or mortar from cracks to be repaired. Substrates shall be free of mortar and sealant residues. Do not widen crack or remove stone material.
   3. Grouting of cracks:
   4. Prepare grout for crack repair in accordance with manufacturer’s recommendations.
   5. Dampen the joint to be grouted prior to grouting. The substrate must absorb all surface water.
   6. Spread grout with a sharp, firm rubber grout float.
   7. Work the grout paste into the crack until completely filled. Use diagonal strokes to pack the crack with grout. Ensure that the crack is filled, and grout is not just sitting on top.
   8. Wipe excess grout from surface adjacent to crack with damp sponge or cloth. Use only sponge or cloth that is damp, not wet or saturated. When tightly squeezed; water will not run from damp sponge or cloth. Surface shall not have visible accumulation of water immediately after cleaning. Do not touch or disturb newly installed grout during cleaning.
   9. Clean until grout is removed from adjacent surfaces.

10. Cover crack and area extending 2 inches past crack with Kraft paper. Secure Kraft paper to surface with tape that will not stain or leave adhesive on stone or adjacent material. Do not adhere tape to window components or glazing. Keep Kraft paper over crack for 24 hours.

3.4 STONE HARDWARE INSTALLATION

A. Refer to Section 04 01 40 – Stone Restoration

3.5 RESTORATION

1. Cleaning
   a. Clean mortar residue from stone area surrounding patch by sponging as many times as necessary with clean water. This should be done before patching material sets.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Products furnished under this Section include the following:
1. Steel lintels
2. Steel plates
3. Steel angles
4. Steel shelf angles
5. Steel support for shoring

B. Related Requirements:
1. Section 04 01 40.91 – Stone Restoration
2. Section 04 05 01 – Masonry Mortar and Grout
3. Section 06 10 00 – Rough Carpentry

1.2 COORDINATION

A. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:
1. Fasteners
2. Shrinkage-resisting grout
3. Anchor bolts

B. Shop Drawings: Show fabrication and installation details. Include plans, sections, and details of metal fabrications and their connections. Show anchorage and accessory items**.** Provide Shop Drawings for the following:
1. Steel lintels
2. Steel plates
3. Steel angles
4. Steel support for shoring

1.4 FIELD CONDITIONS

A. Field Measurements: Verify actual wall construction, locations of existing stone lintels, foundations, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer to design lintel, steel plates, and anchorage design.

2.2 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

C. Stainless Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 304.

2.3 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

B. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in stone, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.

2.4 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.5 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

F. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

G. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

H. Provide for anchorage of type indicated, coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

2.7 STEEL LINTELS

A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.

B. Size loose lintels to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 6 inches unless otherwise indicated.

C. Galvanize loose steel lintels located in exterior walls.

2.8 STEEL SHELF ANGLES

A. Fabricate steel shelf angles from steel angles and shapes of size indicated for supplemental floor framing support at locations indicated. Fabricate in single lengths for each location unless otherwise indicated.

B. Size shelf angles to extend not less than 6 inches at each end beyond exterior face of joist bearing on angle.

C. Galvanize steel shelf angles to be connected to stone foundation walls.

2.9 GENERAL FINISH REQUIREMENTS

A. Finish metal fabrications after assembly.

B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.10 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.

B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and

3.2 INSTALLATION OF LOOSE BEARING AND LEVELING PLATES

A. Clean masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of plates.

B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.3 REPAIRS

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

SECTION 06 03 12

HISTORIC WOOD REPAIR

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes historic treatment of wood in the form of repairing or replacing wood features as follows:

1. Repairing wood doors, frames and trim; floorboards; window shutters; and roof fascia, eave and trim as indicated in the Drawings.
2. Replacing floorboards; windowsills and aprons; shutter boards, and roof fascia, eave, and trim as indicated in the Drawings.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review methods and procedures related to historic wood repair.

1.3 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. For repair dutchman, include section details showing the profile of each wood component being repaired, compared to the existing profile.
2. For replacement members, include elevations and section details indicating the profile of each replacement component and general length.

C. Include plans, elevations, and sections showing locations and details of each new unit and its location in the building on annotated plans and elevations.

D. Samples for Verification:

1. Sample, 12 inches minimum in length, of each repair and replacement profile along with sample or documentation of the existing wood profile.
2. Finish samples.
   a. Natural water-repellant preservative
   b. Paint samples of primer and finish systems.
   c. Existing paint finishes and coatings.
3. Standing and Running Trim: Corner piece showing miter joints.

E. Wood Mockups: Prepare mockups of historic treatment repair processes to demonstrate aesthetic effects such as blending with the existing, and to set quality standards for materials and execution, and for fabrication and installation. Prepare mockups so they are as inconspicuous as practicable.

1. Wood Repair: Prepare a representative example length of each wood component to serve as mockup to demonstrate samples of each type of wood repair.
   a. Doors, frames and trim.
   b. Floorboards.
   c. Window shutters.
   d. Roof fascia, eave and trim.
2. Wood Replacement: Prepare a full replacement piece of wood to serve as mockup to demonstrate samples of each type of wood repair and replacement.
   a. Floorboards.
   b. Window sills and aprons.
   c. Window shutter boards.
   d. Roof fascia, eave, and trim.

F. Coating, Preparation, and Application Mockups: Perform mock-ups on site of each wood preparation and finish condition including treatment of new and existing wood.

1. Mockup, 12 inches minimum length of natural water-repellent preservative.
2. Mockup, 12 inches minimum length, showing surface preparation, primer, and finish system.
3. Mockup of existing painted wood showing surface preparation and recoating.

1.4 QUALITY ASSURANCE

A. Historic Treatment Specialist Qualifications: A qualified historic wood-repair specialist, experienced in repairing, refinishing, and replacing wood in whole and in part is to be employed.

B. Fabricating and installing new woodwork is insufficient experience for wood historic treatment work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 WARRANTY

A. Manufacturer’s Warranty:
1. Written warranty, signed by coating manufacturer, including:
   a. Materials to replace coating that does not comply with requirements; that fails in adhesion, cohesion, or general durability; that cracks, checks, fades, or chalks; or that deteriorates in a manner not clearly specified by submitted coating manufacturer’s data as an inherent quality of the material for the application indicated.
   b. New coating shall closely match color of existing coating. Extend new coating to reveals, surface edges, or other natural termination points to minimize differences in appearance between new and existing coating.
2. Warranty Period: At least two years after Substantial Completion date for all other coatings specified in this Section.

PART 2 - PRODUCTS

2.1 HISTORIC WOOD REPAIR, GENERAL

A. Quality Standard: Comply with applicable requirements in Section 12, "Historic Restoration Work," and related requirements in AWI/AWMAC/WI's "Architectural Woodwork Standards" for construction, finishes, grade rules, and other requirements unless otherwise indicated.

2.2 REPLICATED WOOD ITEMS

A. Replicated wood doors, frames and trim; floorboards; window shutters; and roof fascia, eave and trim: Custom-fabricated replacement wood units and components.

1. Wood Species: Match species of existing wood.
2. Wood Member and Trim Profiles: Match profiles and detail of existing. Blend with the existing.
3. Wood Paint Coating: Match to existing color.

2.3 WOOD-REPLACEMENT MATERIALS

A. Wood, General: Clear fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32-inch (0.8 mm) deep by 1/16 (1.5 mm) inch wide.

1. Wood Species: Match species of each existing type of wood component or assembly unless otherwise indicated.
2. Wood Member and Trim Profiles: Match profiles and detail of existing. Blend with the existing.
3. Wood Finish:
    a. Paint Coating where existing: Match to existing color.
    b. Natural Finish where existing.

2.4 MISCELLANEOUS MATERIALS

A. Wood Repair Materials:

1. Wood Consolidant: 2-component, epoxy compound intended to penetrate into deteriorated wood components and regenerate and harden wood.
    a. LiquidWood manufactured by Abatron.
    b. Flexible Epoxy Consolidant 100 by ConServ Epoxy LLC
    c. Prime-A-Trate by Advanced Repair Technology
    d. West System by Gougeon Brothers, Inc.
    e. or approved equal.
2. Wood Patching Material: 2-part epoxy compound intended for patching minor defects in wood; knife-grade formulation suitable for filling deep holes and spreading to featheredge. Use 1 of following or approved equal:
    a. Flex-Tec HV with Prime-A-Trate primer, manufactured by Advanced Repair Technology, Inc.
    b. WoodEpox with LiquidWood primer, manufactured by Abatron.
    c. West System manufactured by Gougeon Brothers, Inc.
    d. Or approved equal.

B. Adhesives: Wood adhesives with minimum 15- to 45-minute cure at 70 deg F (21 deg C), in gunnable and liquid formulations as recommended in writing by adhesive manufacturer for each type of repair and exposure condition. Adhesive shall be low VOC or No VOC.

C. Fasteners: Use fastener metals that are noncorrosive and compatible with each material joined.

1. Match existing fasteners in material and type of fastener unless otherwise indicated.
2. Use concealed fasteners for interconnecting wood components.
3. Use concealed fasteners for attaching items to other work unless exposed fasteners are unavoidable or the existing fastening method.
4. For fastening metals, use fasteners of same basic metal as fastened metal unless otherwise indicated.
5. For exposed recessed fasteners, use Phillips-type machine screws of head profile flush with metal surface unless otherwise indicated.
6. Finish exposed fasteners to match finish of metal fastened unless otherwise indicated.

2.5 WOOD FINISHES

A. Borate Preservation Treatment: Inorganic, borate-based solution, with disodium octaborate tetrahydrate as the primary ingredient, manufactured for preserving weathered and decayed wood from further damage by decay, fungi, and wood-boring insects; complying with AWPA P5; containing no boric acid.

1. Bora-Care Wood Preservative by Nisus Corporation
2. Or approved equal

B. Unfinished Replacement Units: Provide exposed exterior and interior wood surfaces of replacement units unfinished; smooth, filled, and suitably prepared for on-site priming and finishing.

C. Provide finish system from one manufacturer, with components that are compatible with one another and existing wood substrate, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.

D. Colors: Custom-tinted to match existing color and finish.

E. Wood Preservative: Clear, breathable, penetrating water-based preservative. Use one of following or approved equal:

1. Thompson WaterSeal
   a. Waterproofing Wood Protector
2. WoodRX
   a. Clear Wood Protector
3. Rust-Oleum
   a. Wolman Woodlife Classis
4. Or approved equal system identified through mock-ups

F. Paints and Coatings

1. Refer to Section 09 91 00 – Painting.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean wood of mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. After cleaning, rinse thoroughly with fresh water. Allow to dry before repairing or painting.

B. Condition replacement wood members and replacement units to prevailing conditions at installation areas before installing.

3.2 HISTORIC WOOD REPAIR, GENERAL

A. General: In treating historic items, disturb them as minimally as possible and as follows:

1. Stabilize and repair wood to reestablish structural integrity and weather resistance while maintaining the existing form of each item.
2. Remove coatings and apply preservative treatment before repair.
3. Repair items in place where possible.
4. Install temporary protective measures to protect wood-treatment work that is indicated to be completed later.

B. Mechanical Abrasion: Where mechanical abrasion is needed for the work, use only the gentlest mechanical methods, such as scraping and natural-fiber bristle brushing, that will not abrade wood substrate, reducing clarity of detail. Do not use abrasive methods, such as sanding, wire brushing, or power tools, except as approved by Architect.

C. Repair and Refinish Existing Hardware: Dismantle hardware; strip paint, repair, and refinish it to match finish samples; and lubricate moving parts just enough to function smoothly.

D. Repair Wood: Match existing materials and features, retaining as much original material as possible to perform repairs.

1. Unless otherwise indicated, repair wood by consolidating, patching, splicing, or otherwise reinforcing wood with new wood matching existing wood or with salvaged, sound, original wood.
2. Where indicated, repair wood by limited replacement matching existing material.

E. Replace Wood: Where indicated, duplicate and replace units with units made from salvaged, sound, original wood or with new wood matching existing wood. Use surviving prototypes to create patterns for duplicate replacements.

F. Identify removed items with numbering system corresponding to item locations, to ensure reinstallation in same location.

3.3 WOOD-REPLACEMENT REPAIR

A. General: Replace parts of or entire wood items at locations indicated on Drawings or scheduled.

1. Remove broken, rotted, and decayed wood down to sound wood.
2. Custom fabricate new wood to replace missing wood; either replace entire wood member or splice new wood part into existing member.

3. Secure new wood using finger joints, multiple dowels, or splines with adhesive and nailing to ensure maximum structural integrity at each splice. Use only concealed fasteners. Fill nail holes and patch surface to match surrounding sound wood.

B. Apply preservative treatment to accessible surfaces after replacements are made. Apply treatment liberally by brush to joints, edges, and ends; top, sides, and bottom.

C. Reinstall items removed for repair into original locations.

3.4 INSTALLATION OF STANDING AND RUNNING TRIM

A. Install trim with minimum number of joints as is practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long, except where necessary.

1. Use scarf joints for end-to-end joints.
2. Stagger end joints in adjacent and related members.

B. Fit exterior joints to exclude water.

1. Cope at returns and miter at corners to produce tight-fitting joints, with full-surface contact throughout length of joint.
2. Plane backs of trim and casings to provide uniform thickness across joints, where necessary for alignment.

C. Where face fastening is unavoidable, countersink fasteners, fill surface flush, and sand unless otherwise indicated.

3.5 FIELD COATING – EXAMINATION

A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

B. Remove hardware and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified.

D. Wood Substrates:

1. Prime edges, ends, faces, undersides, and backsides of wood.
2. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler recommended by the coating manufacturer. Sand smooth when dried.

E. Site Conditions:

1. Do not apply coating materials to visibly wet or damp surfaces, during rain, or when rain is imminent.
2. Wood substrates

a. New Wood: Shop preparation and painting shall be conducted in an Enclosed Shop facility as defined in AISC-420-10/SSPC-QP 3.
b. For field or shop painting, provide temporary weatherproof covering as necessary to protect wood substrates from precipitation and remain air-dry prior to coating application.
c. Use weatherproof tarps to protect the prepared or newly coated surfaces from unexpected precipitation.
d. Moisture Content: Do not apply coating materials when maximum allowable moisture content is exceeded. Moisture content of wood substrates shall not exceed 15.0 percent, when measured with an electronic moisture meter.

3.6 PREPARATION FOR FIELD COATING

A. Protection:
1. Protect existing construction and work in place from damage resulting from operations related to the Work including removals, reinstallation, and the storage, preparation, handling, and application of coating materials.
2. Exercise caution in performing Work so as not to damage other building and site elements. Protect the building and site elements from damage.
3. In areas where coating systems are to be applied, protect surrounding construction, including existing paving and sidewalks, from drippage or other effects of coatings.
4. Materials damaged by coating process shall be repaired to the satisfaction of the Owner without additional cost. .
5. Protection materials shall be carefully and thoroughly removed upon completion of Work.
6. Workers, pedestrians, animals, plants, vehicles, other property, etc.
   a. Work required in this Section may include the use of chemicals that can harm workers, pedestrians and other persons, animals, plants, and damage vehicles, other property, street furniture, and other persons and objects that are vulnerable to damage by coating operations.
7. Damage to adjacent property, buildings, vehicles, site features, etc., caused by coating operations shall result in no additional cost to the Government.

B. General:
1. Remove items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before proceeding with surface preparation and coating.
2. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
3. Protect the surfaces of components that are not to be prepared and painted.

3.7 FIELD COATING

A. Priming and Painting: Where indicated in the Drawings.

1. Existing wood repaired in place shall be primed and painted in place.
2. Newly installed wood components shall be primed on all sides prior to installation and painted in place.

B. Water-Repellent Preservatives: Where indicated in the Drawings.

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Supply and construction of wood framing and miscellaneous wood construction.

1.2 REFERENCES

A. Abbreviations:

1. ALSC: American Lumber Standard Committee.
2. APA: APA - The Engineered Wood Association.
3. OSB: Oriented-strand board.

B. Definitions:

1. Rough carpentry: Carpentry Work that is not exposed; that is, concealed by other construction.

C. Reference Standards: Latest edition as of Specification date.

1. American Lumber Standard Committee (ALSC):
   a. PS 20: Voluntary Product Standard, American Softwood Lumber Standard.
2. American National Standards Institute (ANSI)/American Wood Council (AWC):
   a. National Design Specification for Wood Construction (ANSI/AWC NDS).
3. American National Standards Institute (ANSI)/The American Society of Mechanical Engineers (ASME):
   a. ANSI/ASME B18.6.1: Wood Screws (Inch Series).
4. American Wood Council (AWC):
   a. WCD 1 - Details for Conventional Wood Frame Construction.
5. American Wood Protection Association (AWPA):
   a. M4: Standard for the Care of Preservative-treated Wood Products.
   b. T1: User Category System: Processing and Treatment Standard.
   c. U1: Use Category System: User Specification for Treated Wood.
6. APA-The Engineered Wood Association (APA):
   a. Engineered Wood Construction Guide (Construction Guide).
   b. PRP-108: Performance Standards and Qualification Policy for Structural-Use Panels.
7. ASTM International:
   a. A653: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
   b. A666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

c. D3498: Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems.
d. F1667: Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.

1.3 SUBMITTALS

A. Product Data:

1. Dimension Lumber: Species, grading, and intended use of lumber proposed for use on Project; by grading agency accredited by ALSC Board of Review. Clearly note requested substitutions that differ from those specified.

2. Treated Wood:
   a. Chemical treatment manufacturers' literature, including:
      1) Compliance with requirements.
      2) Written instructions for handling, storing, installing, and finishing treated wood.
      3) Written requirements for corrosion protection of fasteners and connectors to be in contact with treated wood.
      4) Copies of warranties for each type of treatment.
      5) For fire-retardant-treated wood, include physical properties of untreated and treated wood, both before and after exposure to elevated temperatures when tested according to ASTM D5516 and D5664 by independent testing laboratory.
   b. Certification by treating plant that treated wood complies with requirements.
      1) Indicate type of preservative used and net amount of preservative retained.
      2) For treatments requiring drying after treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Site.
   c. Include Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

3. Fabricated Products: manufacturer's literature indicating conformance with requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials to prevent damage to materials or structure.

B. Deliver materials to Site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

C. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture damage.

D. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer.

E. Stack lumber, plywood, and other panels. Protect from water and weather. Place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

F. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

G. Conspicuously mark damaged materials and damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.

1.5 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of rough carpentry Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Handle and install materials in strict accordance with safety requirements required by manufacturer; Safety Data Sheets (SDS); and local, state, and federal rules and regulations. Maintain Safety Data Sheets (SDS) with materials in storage area and available for ready reference on Site.

1.6 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.

1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

PART 2 PRODUCTS

2.1 DIMENSION LUMBER

A. General: ALSC PS 20; provide lumber of nominal sizes shown on Drawings.

1. Grade: Per applicable rules of lumber grading agency accredited by ALSC Board of Review. Factory mark each piece of lumber with grade stamp of grading agency.
   a. For exposed lumber indicated to receive stained or natural finish, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by grading agency.
2. Provide S4S dressed lumber unless otherwise indicated.
3. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2 inch nominal thickness or less, unless otherwise indicated.

B. Floor, Ceiling, and Roof Framing: Douglas fir-larch, Construction No. 1 grade or better.

2.2 PLYWOOD AND ORIENTED-STRAND BOARD PANELS

A. General: APA PRP-108; provide panels of nominal thicknesses shown on Drawings.

1. Identification: Per APA performance standards. Factory mark each panel with performance ratings.

B. Roof Sheathing: APA Rated Sheathing, Exposure 1; 3/4 inch plywood.

2.3 PRESERVATIVE TREATMENT

A. Application: Treat items indicated on Drawings, and the following:

1. Wood framing members permanently exposed to weather.
2. Wood framing members and floor boards less than 18 inches above grade.
3. Wood sill plates and roof framing mmbers.
4. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
5. Wood sleepers, blocking, furring, stripping, and similar members that are not exposed to view but are in contact with masonry or concrete.

B. Preservative Treatment Requirements: AWPA U1 and T1.

1. User Category: UC4A, except UC2 may be used for lumber and panels that are not in contact with ground and are continuously protected from liquid water.
2. Commodity Specification:
   a. Dimension lumber: A.
   b. Plywood and OSB panels: F.
3. Preservative Treatment: Water-borne or Oxine Copper (Cu8); acceptable to authorities having jurisdiction.
   a. For exposed wood indicated to receive stained or natural finish, use preservative that does not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

C. Kiln-dry material after treatment to maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.

D. Mark each treated item with treatment mark of inspection agency approved by ALSC Board of Review or APA.
   a. For exposed lumber or panels indicated to receive stained or natural finish, mark treatment stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by grading agency.

E. Field-Applied Preservative: AWPA M4; Copper-Napthenate (CuN), two percent minimum solids solution.

2.4 FIRE-RETARDANT TREATMENT

A. Application: Treat items indicated on Drawings and as required by local building code, for local building code requirements.

B. Source Limitations: Obtain each type of fire-retardant-treated wood product through one source from single producer. Use only treated wood for which strength reduction factors based on testing according to ASTM D5516 and D5664 are provided.

C. Fire-Retardant Treatment Requirements: AWPA U1 and T1.

1. User Category:
   a. UCFA HT for interior applications unless noted otherwise.

b. UCFB for exterior applications and where indicated.

2. Commodity Specification: H.

3. Fire Retardant: Use material that does not promote corrosion and is acceptable to authorities having jurisdiction.
   a. For exposed wood indicated to receive stained or natural finish, use fire retardant that does not contain colorants, bleed through, or otherwise adversely affect finishes.

D. Mark each treated item with classification mark of Underwriter's Laboratory (UL), Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

2.5 AUXILIARY MATERIALS

A. Miscellaneous Lumber: Provide lumber for support or attachment of other construction, including blocking, cants, nailers, and furring.

1. Construction grade or better, with 19 percent maximum moisture content.
   a. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails or damage to paneling.

B. Fasteners: ANSI/AWC NDS.

1. Nails: ASTM F1667; size as appropriate for application.
   a. Minimum edge distance, end distance, and spacing: Maintain minimum distances and spacings specified by ANSI/AWC NDS to prevent splitting of wood.
   b. Penetration into Main Member: 3/4 inch minimum or as appropriate for application and size of main member to obtain penetration of a minimum 1/2 depth of member.
   c. Drill lead holes if necessary to prevent splitting of wood.

2. Wood Screws: ANSI/ASME B18.6.1: size as appropriate for application.
   a. Minimum edge distance, end distance, and spacing: Maintain minimum distances and spacings specified by ANSI/AWC NDS to prevent splitting of wood.
   b. Penetration into Main Member: 1 inch minimum or as appropriate for application and size of main member to obtain penetration of a minimum 1/2 depth of member.
   c. Drill lead holes as required to avoid splitting wood.

3. Bolts: ASME B18.2.1, ASTM A307: 1/2 inch diameter minimum; length sufficient to fully engage washer and nut.
   a. Washers and nuts: ASTM A563; use hex nuts, and flat washers on both sides of connection.
   b. Minimum edge distance, end distance, and spacing: Maintain minimum distances and spacings specified by ANSI/AWC NDS.
   c. Drill holes through wood.

4. Where rough carpentry is exposed to weather, in contact with ground, or in area of high relative humidity, use Type 304 stainless steel fasteners.

C. Prefabricated Steel Connectors:

1. Steel Sheet: ASTM A653/A653M, G90 minimum; Hot-dip, galvanized, except as noted.
   a. For connectors in contact with preservative-treated wood: ASTM A666, Type 304**.**
   b. For exterior locations and where indicated: ASTM A666, Type 304.

2. Connectors: As shown on Drawings. Use the following or approved equal.

a. Joist connectors: galvanized steel, manufactured by Simpson Strong-Tie Company Inc.
b. Gusset angles: galvanized steel, manufactured by Simpson Strong-Tie Company Inc.
c. Corner roof straps at ridges: galvanized steel, manufactured by Simpson Strong-Tie Company Inc.
d. Bracing plates at roof corner braces and between sill plate and eave framing: galvanized steel, manufactured by Simpson Strong-Tie Company Inc.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with framing Subcontractor for compliance with requirements and other conditions affecting installation or performance of rough carpentry Work.

1. Ensure that work done by other trades is complete and ready for rough carpentry Work.
2. Verify that areas and conditions under which rough carpentry Work is to be performed permit proper and timely completion of Work.
3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of rough carpentry Work and recommend corrections.
4. Do not proceed with rough carpentry Work until adverse conditions have been corrected and reviewed by Architect/Engineer.
5. Commencing rough carpentry Work constitutes acceptance of Work surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workers, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.

B. Prevent construction debris, coatings, and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Erect temporary protective canopies, as necessary, over walkways and at points of pedestrian and vehicular access that must remain in service during Work.

F. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 INSTALLATION, GENERAL

A. Install wood construction according to Drawings and Specifications and minimum requirements of local building code. Notify Architect/Engineer of deviations between Drawings and Specifications and minimum code requirements.

B. Provide framing members of sizes and spacing indicated on Drawings. Comply with AWC WCD 1 unless otherwise indicated.

C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

1. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit.
2. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.

D. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

1. Do not splice structural members between supports unless indicated otherwise on Drawings.

E. Apply field-applied preservative to cut surfaces of preservative-treated lumber and panels. Apply minimum two coats per manufacturer's recommendations. Wipe off excess material.

F. Securely connect rough carpentry and attach to substrate as indicated on Drawings.

1. Make tight connections between members.
2. Space and install fasteners without splitting wood.
3. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials.
4. For hardware, anchors, and connectors, use fasteners in all holes per manufacturer's recommendations unless indicated otherwise.
5. Lag screws: Pre-drill holes to diameter at base of threads and length equal to embedment.
6. Bolts: Drill holes 1/16-inch larger in diameter than bolts used. Drill straight and true from one side only. Use washers under head and nut.

3.4 WOOD SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated on Drawings and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

3.5 JOIST AND RAFTER FRAMING INSTALLTION

A. Install joists and rafters with crown edge up.

B. At supports:

1. Minimum bearing: 1 1/2 inches on wood; 3 inches on masonry.
2. Attachment:

a. Where supported on wood members, by toe nailing or by using metal framing anchors as indicated on Drawings.
b. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.

3. Provide solid blocking of 2-inch nominal thickness by depth of joist or rafter over supports and at ends of joists and rafters, unless nailed to header or band.

4. Lap members framing from opposite sides of beams, girders, and walls at least 4 inches or securely tie opposing members together.

C. Rafters:

1. Notch to fit exterior wall plates and toe nail or use metal framing anchors.

2. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

3. At hips, provide rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper.

D. Bridging: Provide bridging between floor joists at maximum intervals of 8 feet on center where indicated on Drawings.

1. Use diagonal wood bridging formed from bevel-cut, 1-inch-by-3-inch lumber, double-crossed and nailed at both ends to joists; solid wood blocking; diagonal metal members; continuous 1-by-3-inch wood strip perpendicular to joists and nailed across bottom of joists; or approved equal.

E. Do not notch in middle third of joists or rafters; in end thirds, limit notches to 1/6 of member depth.

F. Do not bore holes larger than 1/3 of joist or rafter depth; do not locate closer than 2 inches from top or bottom of member.

G. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions.

3.6 STAIR FRAMING INSTALLATION

A. Provide stair framing members of size, spacing, and configuration to match existing.

1. Tolerances: No more than 3/16 inch variation between adjacent treads and risers; no more than 3/8 inch variation between largest and smallest treads and risers within each flight.

3.7 FIELD QUALITY CONTROL

A. Architect/Engineer may observe in-progress construction for quality and conformance with Construction Documents. Notify Architect/Engineer of Work progress at least weekly.

3.8 CLEANING

A. At the end of each workday, clean Site and Work areas and place debris and rubbish in appropriate containers.

B. After completing rough carpentry Work, clean up debris and surplus materials and remove from Site.

3.9 PROTECTION

A. Protect installed rough carpentry from damage due to exposure to harmful weather, physical abuse, and other causes. Temporary cover rough carpentry Work exposed to weather as soon as practical after installation to prevent deterioration from wetting.

END OF SECTION

SECTION 07 13 12

WATERPROOFING AND DRAINAGE SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. This section includes:

1. Sub-drainage and waterproofing including a perimeter drain tile system with filter fabric, drainage board, waterproofing membrane, and associated earthworks
2. Penetrating water repellent at above grade portion of CMU wall.
3. Replacement of gypsum board finishes at interior face of CMU wall.

1.2 RELATED SECTIONS

A. Section 01 35 13 - Archeological Protection

B. Section 07 62 00 - Sheet Metal Flashings and Trim

C. Section 07 92 00 – Joint Sealants

D. Section 09 91 00 - Painting

1.3 SUBMITTALS

A. Product Data:

1. Perforated double-wall pipe and fittings
2. Geotextile filter fabrics
3. Drainage board
4. Water repellant for above grade CMU
5. Gypsum Board

B. Waterproofing manufacturer's literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and application instructions. Include voc content of components.

C. Aggregate Gradation

D. Shop Drawings:

1. Waterproofing: show locations and extent of waterproofing. Include details for substrate joints and cracks, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.
2. Subsurface drainage piping: show layout of subsurface drainage piping, including starting and ending elevations based on dimensional and slope requirements shown on the

drawings, as well as as-built layout and elevation and of footings and other structural elements.

E. Samples:

1. 8"x8" square of bentonite membrane waterproofing.
2. 4"x4" square of drainage board.
3. 6" long section of perforated drain and geotextile sock.
4. 8"x8" square of geotextile filter fabric.
5. 6" long section of stainless steel termination bar and stainless steel anchors.

F. Product Test Reports:

1. From qualified independent testing agency indicating and interpreting test results of waterproofing for compliance with requirements, based on comprehensive testing of current waterproofing formulations.

G. Installer Qualifications:

1. Certification signed by waterproofing manufacturer, certifying that installer complies with manufacturer's requirements to install specified, warranted, waterproofing system.
2. Submit evidence that installer's existing company has minimum of 5-years continuous experience in application of specified materials. Submit list of at least five completed projects of similar scope and size, including:
   a. Project Name.
   b. Owner's Name.
   c. Owner's Representative Name / Address / Phone Number.
   d. Description of Work.
   e. Self-adhering Sheet Materials Used.
   f. Project Supervisor.
   g. Total Cost of Waterproofing Work.
   h. Completion Date.

H. Sample Warranties: Sample warranties: copies of waterproofing manufacturer's warranty and installer's warranty, both stating obligations, remedies, limitations, and exclusions. Submitted with bid.

I. Prior to installation of waterproofing system, submit to waterproofing manufacturer's technical services department for review and approval:

1. Manufacturer's project registration form, with information filled out completely and accurately, including deviations from specification.
2. Complete set of drawings of waterproofing system installation showing substrate limits, outline, dimensions, transitions, and types and locations of penetrations.
3. Atypical or special condition details which are to be used.

J. Following completion of work, submit waterproofing manufacturer's warranty inspection report(s) and completed warranty; submit completed installer's warranty.

K. Installer shall provide example projects, similar to the scope of this project, demonstrating installer qualifications.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by waterproofing manufacturer to install waterproofing and that is eligible to receive waterproofing manufacturer's warranty. Must have installations of specified materials in local area in use for minimum of five years.

B. Pre-installation conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. The Archeology Monitor, installer, and general contractor shall attend the meeting. Agenda for meeting shall include review of special details and flashing and the protocols for excavation work.

C. Schedule coordination: schedule work such that sensitive materials will not be left exposed to weather for longer than recommended by the manufacturer.

D. Site visits by waterproofing manufacturer's representative: waterproofing manufacturer's representative shall visit site at following times:

1. At the beginning of waterproofing installation to establish standard of quality to be used for remainder of waterproofing work.
2. Periodically during work at critical times and as required to meet provisions of waterproofing manufacturer's warranty.
3. Submit written report with observations, field decisions, and request for design changes to Architect/Engineer for each site visit.
4. Coordinate Site Visits with Architect/Engineer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions, recommendations, and material safety data sheets. Protect from damage from sunlight, weather, excessive temperatures, and construction operations. Remove damaged material from the site and dispose of in accordance with applicable regulations.

1. Do not double-stack pallets of membrane on the job site. Provide cover on top and all sides, allowing for adequate ventilation. Protect primer, mastic and adhesive from moisture and potential sources of ignition. Store drainage composite off the ground. Provide cover on top & all sides.

1.6 WARRANTY

A. Manufacturer's warranty: provide written five year material warranty issued by the material manufacturer upon completion of work.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to installation of materials. Notify Architect/Engineer of conditions found to be different than those indicated in contract documents. Architect/Engineer will review situation and inform contractor and installer of changes.

B. Environmental limitations: apply waterproofing when existing and forecast weather conditions permit waterproofing to be installed according to waterproofing manufacturer's written instructions and warranty requirements.

1. Do not apply when substrate or ambient temperature is below 40° f, or outside of range recommended by waterproofing manufacturer.
2. Do not apply to damp or wet substrate.
3. Install materials in strict accordance with safety requirements required by waterproofing manufacturer, material safety data sheets, and local, state, and federal rules and regulations.
4. Maintain adequate ventilation during preparation and application of waterproofing materials.

PART 2 PRODUCTS

2.1 COMPOSITE BENTONITE WATERPROOFING MEMBRANE

A. Composite Polyethylene/Bentonite Membrane: Minimum **90-mil** thick membrane consisting of a polyethylene geomembrane bonded to a layer of bentonite clay granules.

1. Puncture Resistance: Not less than 155 lbf in accordance with ASTM E154.
2. Vapor Permeance: 0.03 perm in accordance with ASTM E96/E96M.
3. Tensile Strength: Not less than 4,000 psi in accordance with ASTM D412.
4. Elongation: Not less than 500 percent in accordance with ASTM D412.

B. Manufacturers and Products:

1. Paraseal LG (HDPE/Bentonite sheet membrane) manufactured by Tremco, Inc.
2. Volclay Ultraseal SP manufactured by CETCO
3. Approved equal

C. Source Limitations: Obtain materials through one source from a single manufacturer, or from sources approved by waterproofing manufacturer.

2.2 AUXILIARY MATERIALS FOR BENTONITE WATERPROOFING MEMBRANE

A. General: Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with bentonite waterproofing.

B. Primer: Liquid primer recommended for substrate by waterproofing manufacturer.

C. Granular Bentonite: Sodium bentonite clay containing a minimum of 90 percent montmorillonite (hydrated aluminum silicate), with a minimum of 90 percent passing a No. 20 sieve.

1. Paraseal Paragranular

2. Volclay CG-50

3. Approved equal based on manufacturer's recommendation compatible with approved bentonite waterproofing system.

D. Bentonite Mastic: Bentonite compound of trowelable consistency, specifically formulated for application at joints and penetrations.

E. Bentonite Tubes: Manufacturer's standard 2-inch- diameter, water-soluble tube containing approximately 1.5 lb/ft. of granular bentonite; hermetically sealed; designed specifically for placing on wall footings at line of joint with exterior base of wall.

F. Sheet Strips: Self-adhering, composite bentonite sheet strips of same material and thickness as bentonite waterproofing.

G. Mastic, Adhesives, and Tape: Liquid mastic and adhesives, and adhesive tapes recommended by bentonite waterproofing manufacturer.

2.3 PERFORATED PIPES AND FITTINGS

A. Perforated HDPE pipe, 8 inches in diameter:

1. ADS N-12 ST 1B HDPE Perforated Drain Pipe as manufactured by Advanced Drainage Systems, Inc., Hillard, Ohio, (800) 821-6710, or

2. Architect/Engineer approved equivalent.

B. Provide all fittings, joints, PVC cleanouts, and other pipe accessories in manufacturer's standard components as required.

2.4 PROTECTIVE COURSE

A. Protection mat of type and thickness as recommended in writing by waterproofing manufacturer for each Project condition.

1. Adhesive: As recommended in writing by waterproofing manufacturer.

2. Nominal Thickness:
   a. For vertical applications: 1/8 inch

3. Protection Course Adhesive: As recommended by bentonite waterproofing manufacturer for type of protection board.

2.5 DRAINAGE PANELS AND MATS

A. Molded-Sheet Drainage Panel: Prefabricated, composite drainage panels, manufactured with permeable, geotextile facing laminated to molded-plastic-sheet drainage core.

1. Drainage Core: Three-dimensional, non-biodegradable, molded-plastic-sheet material designed to effectively drain water under backfill pressure.
   a. Vertical flow rate of 9 to 18 gpm per foot.
   b. Horizontal flow rate of not less than 2.8 gpm per foot.

2.6 FILTER FABRIC

A. Non-woven Geotextile: Non-woven needle-punched geotextile, manufactured for subsurface drainage, made from polyolefins or polyesters.

1. Grab Strength: ASTM D4632 - 82 pounds minimum.
2. Puncture Strength: ASTM D4833 - 45 pounds minimum.
3. Elongation: ASTM D4632 - 50 percent minimum.
4. Permittivity: ASTM D4491 - 0.5 per second minimum.
5. Water Flow Rate: ASTM D4491 - 140 gallons per minute per square foot minimum.
6. Apparent Opening Size: ASTM D4751 - No. 70 sieve minimum.

2.7 INSULATION

A. Insulation Drainage Boards: ASTM 578, extruded-polystyrene board insulation; fabricated with one side have grooved drainage channels. Faced with manufacturer's standard geotextile.

1. Type IV, 1.6-pounds-per-cubic-foot minimum density and 25-pounds-per-square-inch minimum compressive strength.
2. Type VI, 1.8-pounds-per-cubic-foot minimum density and 40-pounds-per-square-inch minimum compressive strength.

2.8 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.9 WATERPROOFING ACCESSORIES

A. Termination Bars: A666, Type 304 stainless-steel or aluminum; approximately 1-inch wide by 1/8-inch thick; with predrilled holes at 8 inches on center.

B. Fasteners:

1. For concrete and masonry substrates:
   a. Made of corrosion-resistant materials.
   b. Mushroom-head anchors; 1/4-inch diameter, 1-1/4-inch embedment minimum.

c. Use Zamac Nailin fasteners manufactured by Power Fastening, Inc., or equal.

2. For sheet metal substrates:
   a. Made of corrosion-resistant materials or coated for corrosion resistance.
   b. Minimum No. 8-18 by 1-1/4-inch long, self-drilling.
   c. Use TEK 2 Self-Drilling Fasteners manufactured by ITW Buildex; Dril-Flex screws manufactured by Elco Industries, Inc.; or equal.

2.10 SOIL MATERIALS

A. Backfill, drainage course, impervious fill, and satisfactory soil materials.

1. For perimeter drain trenching backfill.

2. Pipe trench embedment.

2.11 PENETRATING WATER REPELLENT

A. Silane/Siloxane-Blend: Clear blend of silane and siloxane. Use one of the following or approved equal:

1. MasterProtect H 185 by BASF Construction Chemicals, LLC. 6.6% solids. For concrete block.

2. Protectosil Aqua-Trete EM by Evonik Industries. 10% solids. For brick and concrete block.

3. KlereSeal 910-W/920-W by Pecora Corporation. For concrete block.

2.12 GYPSUM BOARD AND ACCESSORIES

A. Interior Gypsum Board

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. CertainTeed Corp.
   b. Georgia-Pacific Gypsum LLC.
   c. National Gypsum Company.
   d. USG Corporation.

B. Auxiliary Materials For Interior Finishes

1. Joint Treatment Materials
   a. General: Comply with ASTM C 475/C 475M.
   b. Joint Tape:
      1) Interior Gypsum Board: Paper.
   c. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
      1) All-purpose compound.

2. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

3. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
   a. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

PART 3 EXECUTION

3.1 GENERAL

A. The installer shall examine conditions of substrates and other conditions under which this work is to be performed and notify the contractor, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected.

B. Notify subsurface waterproofing and drainage consultant in writing of conditions which may adversely affect waterproofing system installation or performance. Do not proceed with waterproofing installation until these conditions have been corrected and reviewed by subsurface waterproofing and drainage consultant.

1. Ensure that work done by other trades is complete and ready to receive waterproofing.

2. Notify subsurface waterproofing and drainage consultant in writing of conditions which may adversely affect waterproofing system installation or performance. Do not proceed with waterproofing installation until these conditions have been corrected and reviewed by subsurface waterproofing and drainage consultant.

3.2 EARTHWORK

A. Excavate to gradients, lines, depths, and elevations to provide safe access to perform work.

B. Maintain support or provide additional support for adjacent structures, including slabs and walls. Do not undermine existing structures.

C. Stage excavation to provide lateral support for palisade walls.

D. Excavation Bottoms: Excavate and shape bottoms of soil to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

3.3 SUBDRAINAGE AND WATERPROOFING

A. Preparation of Substrates for bituthene application:

1. Refer to manufacturer's literature for requirements for preparation of substrates. Surfaces shall be structurally sound and free of voids, spalled areas, looser aggregate and sharp protrusions. Remove contaminants such as grease, oil and wax from exposed surfaces. Remove dust, dirt, loose stone and debris by compressed air. Use repair materials and methods which are acceptable to manufacturer of sheet membrane waterproofing.

3.4 INSTALLATION, GENERAL

A. Prepare substrates, voids, cracks, and cavities; and install waterproofing and accessories according to manufacturer's written instructions.

1. Before installing, verify the correct side of waterproofing that faces substrate surface.

2. Apply granular bentonite around penetrations in horizontal surfaces and changes in plane according to manufacturer's details in preparation for bentonite tubes and mastic.

3. Apply bentonite tubes, bentonite mastic, or both at changes of plane, construction joints in substrate, projections, and penetrations.

4. Prime the substrate. Primer may be omitted on concrete surfaces that comply with manufacturer's written requirements for dryness, surface texture, and freedom from imperfections.

B. Apply bentonite tubes continuously on footing against base of wall to be waterproofed.

C. Protect waterproofing from damage and wetting before and during subsequent construction operations. Repair punctures, tears, and cuts.

D. Install protection course before backfilling or placing overburden when recommended in writing by waterproofing manufacturer.

3.5 INSTALLATION OF GEOTEXTILE/BENTONITE SHEETS

A. Install a continuous layer of waterproofing sheets directly against surface to be waterproofed. Lap ends and edges a minimum of 4 inches on horizontal and vertical substrates unless otherwise indicated. Stagger end joints between sheets a minimum of 24 inches. Fasten seams by stapling to adjacent sheet or nailing to substrate.

B. Walls: Starting at bottom of wall, apply waterproofing sheets horizontally against wall. Secure with masonry fasteners spaced according to manufacturer's written instructions. Extend to bottom of wall and secure.

C. Termination at Grade:

1. Extend waterproofing sheets horizontally, minimum 3 feet at the foundation level. Extend waterproofing sheets horizontally, minimum 6 feet at grade level to form lens. Secure top edge with termination bar. Apply sealant to top edge of termination bar.

2. Fasten top edge of waterproofing sheets to wall and protect top edge with sheet metal counterflashing. Cover waterproofing with a lapped course of plastic protection sheets if backfilling does not proceed immediately.

3.6 INSTALLATION OF MOLDED-SHEET DRAINAGE PANELS

A. Place and secure molded-sheet drainage panels according to manufacturer's written instructions. Use adhesives or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

1. For vertical applications, install board insulation before installing drainage panels.

3.7 INSTALLATION OF INSULATION DRAINAGE PANELS

A. Install over waterproofed surfaces. Cut and fit to within 3/4 inch of projections and penetrations.

B. Ensure that drainage channels are aligned and free of obstructions.

C. On vertical surfaces, set insulation units in adhesive or tape applied according to manufacturer's written instructions.

3.8 DRAINAGE BOARD INSTALLATION

A. Place and secure drainage panels to substrate according to waterproofing manufacturer's written instructions. Use adhesive, or mechanical fasteners that will not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed drainage panels during subsequent construction.

1. Splice panels together by peeling back fabric on bottom panel to expose cores, overlapping top panel 4 inches, interlocking and snapping in place, and reattaching fabric.

2. Neatly trim drainage panels to fit closely at base of projections. Cut core around penetrations; cut "x" in filter fabric and tape fabric to sides of penetration.

3. Trim drainage panel edge to ensure that water will flow freely from panel.

4. Cover cut edges of drainage panels with integral fabric flap by tucking fabric over edge of core and adhering to bottom of core.

5. Do not use tape to seal joints between drainage panels or to secure lapping fabric.

3.9 FILTER FABRIC INSTALLATION

A. Refer to manufacturer's literature for recommendations on installation, including but not limited to, the following:

1. At overlaps between rolls, provide 3-foot minimum overlap from upstream to downstream roll.

2. At top of drainage course, provide minimum 12-inch overlaps.

3.10 PIPING APPLICATIONS

A. Underground Sub-drainage Piping:

1. Perforated HDPE pipe and fittings, couplings, and coupled joints.
   a. Installed per manufacturer’s recommendations.

2. Non-perforated PVC pipe and fittings, couplings, and coupled joints.
   a. Installed according to ASTM D 2321.

3.11 DRAIN TILE INSTALLATION

A. Lay flat-style geotextile filter fabric in trench and overlap trench sides.

B. Place supporting layer of drainage course over compacted sub-grade and geotextile filter fabric, to compacted depth of not less than 4 inches.

C. Encase pipe with sock-style geotextile filter fabric before installing pipe. Connect sock sections with adhesive or tape.

D. Install drainage piping as indicated in Part 3 “Piping Installation” Article 3.9 for subdrainage.

E. Add drainage course to width of at least 6 inches on side away from wall and to top of pipe to perform tests.

F. After satisfactory testing, cover drainage piping with drainage fill material to width of at least 6 in. on side away from footing, and above top of pipe to within 12 inches of finish grade.

G. Wrap top of drainage course with flat-style geotextile filter fabric.

H. Place layer of flat-style geotextile filter fabric over top of drainage course, overlapping edges at least 4 inches.

I. Place initial backfill material over compacted drainage course. Place material in loose-depth layers not exceeding 6 inches. Thoroughly compact each layer. Final backfill as required for sidewalk sub-base elevations and slope away from building.

3.12 PIPING INSTALLATION

A. Install piping beginning at low points of system, true to grades and alignment indicated, with unbroken continuity of invert. Bed piping with full bearing in filtering material. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions and other requirements indicated.

1. Sub-drainage piping: Install piping pitched down in direction of flow, at a minimum slope of 0.5 percent, and as indicated by drawings.

B. Use increasers, reducers, and couplings made for different sizes or materials of pipes and fittings being connected. Reduction of pipe size in direction of flow is prohibited.

C. Install thermoplastic piping according to ASTM D 2321.

D. Special pipe couplings: Join piping made of different materials and dimensions with special couplings made for this application. Use couplings that are compatible with and fit materials and dimensions of both pipes.

3.13 EXCAVATION BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

C. Place and compact final backfill of satisfactory soil to final subgrade elevation.

D. Install warning tape directly above utilities, 12 inches below finished grade.

1. Under walks and pavements, use satisfactory soil material.

3.14 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. For excavation areas, compact each layer of initial and final backfill soil material at 90 percent.

3.15 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations to match existing construction and grades.

B. Site Rough Grading: Slope grades gradually to direct water away from buildings and to prevent ponding.

3.16 SURFACE PREPARATION FOR PENETRATING WATER REPELLENT

A. Equipment:

1. Compressed air equipment capable of removing dust, dirt, and water.

B. Clean and prepare substrate according to water-repellent manufacturer's written instructions. Provide clean, dust-free, and dry substrate.

1. Verify that repointing mortar has cured and aged for minimum time period recommended by water-repellent manufacturer.

2. Allow wet substrates to dry for at least 24 hours. Verify that substrate is sound and is visibly dry and free of moisture.

3. Remove grease, oil, asphalt solids, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete. Use concrete cleaner approved by water-repellent manufacturer where necessary. If cleaner is used, rinse thoroughly to remove cleaner residue.

4. Rout cracks and joints designated by Architect/Engineer, remove existing sealant, and install new sealant. Allow sealant to cure for at least seven days or as recommended by water-repellent and sealant manufacturers.

5. Thoroughly sweep substrate and clean with oil-free compressed air.

C. Clean and prepare concrete masonry surfaces using procedure demonstrated in mockup and approved by Architect/Engineer and Owner's Representative. Provide clean, dust-free, and dry substrate. Verify that mortar has cured and aged for minimum time period recommended by water-repellent manufacturer.

D. Proceed with application only after unsatisfactory conditions have been corrected. Commencing application constitutes acceptance of Work surfaces and conditions.

3.17 PENETRATING WATER REPELLENT APPLICATION

A. A. Equipment:

1. Low-pressure (15 to 25 pounds per square inch), airless spray equipment.
2. Low-pressure (15 to 25 pounds per square inch), positive-displacement, garden-type spray equipment, fitted with fan-spray nozzle
3. Brushes and rollers.
4. Brooms and squeegees.

B. Before beginning application:

1. Provide adequate ventilation during and after application of water repellent.
2. Provide dry-chemical fire extinguishers and clearly post "NO SMOKING" signs in Work area.

C. Apply water repellent at coverage rate demonstrated in mockup, in a uniform manner, using low-pressure spray equipment, brushes, and rollers. Use brooms and squeegees to achieve even distribution. Do not alter or dilute material. Comply with manufacturer's written instructions for using airless spraying procedure.

1. Prior to use, thoroughly clean spray equipment, tanks, and hoses, and make free of water, foreign matter, and oily residues. Flush with anhydrous alcohol or small amounts of silane.
2. On vertical surfaces, apply from bottom up, with controlled run-down of about 8 inches, with hand-spray unit, brushes, and rollers.
3. At cracks, construction joints, and concrete replacement perimeters not sealed with sealant or epoxy, adjust nozzle of hand-spray unit to produce concentrated stream of water repellent to saturate cracks and joints.
4. Use brushes and rollers at edges of application area to avoid overspray on adjacent surfaces.
5. If water-repellent application is not completed at one time, clearly mark location where application is terminated.

3.18 SPLASH PAD AND OUTLETS

A. Install splash pad to protect masonry and landscaping from erosion.

3.19 FIELD QUALITY CONTROL

A. Testing: After installing drainage course to top of piping, test drain piping with water to ensure free flow before backfilling. Remove obstructions, replace damaged components, and repeat test until results are satisfactory.

3.20 CLEANING AND PROTECTION

A. Clear dirt and other superfluous material from the interior of installed piping and structures as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed. Place plugs in ends of uncompleted pipe at end of each day or when work stops.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

C. Protect waterproofing from damage and wear during remainder of construction period.

D. Do not permit foot or vehicular traffic on unprotected waterproofing.

E. Do not allow waste products (petroleum, grease, oil, solvents, vegetable oil, mineral oil, animal fat, etc.) to come into contact with waterproofing. Exposure to foreign materials or chemical discharges must be presented to waterproofing manufacturer for evaluation to determine impact on waterproofing performance.

F. Protect installed drainage panels from damage due to ultraviolet light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

G. Over service life, do not expose waterproofing or accessories to constant temperature in excess of 180 degrees F (i.e., hot pipes and vents, direct steam venting, etc.).

3.21 GYPSUM BOARD

A. Examination

1. Examine areas and substrates with Installer present, for compliance with requirements and other conditions affecting performance.
2. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
3. Proceed with installation only after unsatisfactory conditions have been corrected.
4. Remove deteriorate gypsum board finish at interior of building.
5. Clean exposed face of CMU of all dirt, fasteners, and debris prior to application of new gypsum board finishes.

B. Applying And Finishing Panels, General

1. Comply with ASTM C 840.
2. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
3. Locate edge and end joints over supports.

C. Finishing Gypsum Board

1. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
2. Prefill open joints and damaged surface areas.
3. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Protection

1. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

2. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

3. Remove and replace panels that are wet, moisture damaged, and mold damaged.
   a. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
   b. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

SECTION 07 31 29

WOOD SHAKE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Wood shake roofing.
2. Underlayment and shake interlayment materials.
3. Self-adhering sheet underlayment.
4. Undercoursing and wood shingle siding for replacement shingles.

B. Related Sections include the following:

1. Section 06 10 00 - Rough Carpentry

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 SUBMITTALS

A. Product Data: For each type of product with corresponding documentation indicated in this section.

B. Samples for Initial Selection: For each type of wood shingle indicated.
1. Include similar Samples of trim and accessories involving color selection.

C. Samples for Verification: For the following products, of sizes indicated.

1. Wood Roof Shakes: Full size.
2. Wood Wall shingles: Full size.
3. Hip Unit: Full size.
4. Underlayment and shake interlayment materials: 12 inches (300 mm) square.
5. Self-Adhering Underlayment: 12 inches (300 mm) square.
6. Undercoursing: Full Size.

D. Qualification Data: For Installer.

E. Research/Evaluation Reports: For wood shakes.

F. Maintenance Data: For wood products to include in maintenance manuals.

G. Warranties:

1. Materials warranties.
2. Roofing Installer's warranty.
3. Special warranties specified in this section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who is an approved affiliate member of CSSB.

B. Grading Agency Qualifications: An independent testing and inspecting agency recognized by authorities having jurisdiction as qualified to label wood products for compliance with referenced grading rules.

C. Source Limitations: Obtain wood products through one source from a single manufacturer.

D. Fire-Test-Response Characteristics: Provide wood products and related roofing materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; UL 790 or ASTM E 108 with ASTM D 2898, for application and roof slopes indicated.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approval of mockups is also for other material and construction qualities specifically approved by Architect/Engineer in writing.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect/Engineer in writing.
3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture in accordance with manufacturer's written instructions.

B. Store underlayment rolls on end on pallets or other raised surfaces. Do not double-stack rolls.

1. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.

C. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing to be performed according to manufacturer's written instructions and warranty requirements.

1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.

1.8 WARRANTY

A. Special Warranty: CSSB's standard form in which CSSB agrees to repair or replace wood shingles that fail in materials within specified warranty period. Material failures include manufacturing defects that result in leaks.

1. Material Warranty Period: 20 years for shingles, and 20 years for manufactured hip and ridge units, from date of Substantial Completion.

B. Retain paragraph Special Project Warranty: Roofing Installer's warranty, on warranty form at end of this Section, signed by roofing Installer, covering Work of this Section, in which roofing Installer agrees to repair or replace components of wood shingles roofing that fail in materials or workmanship within the following warranty period:

1. Warranty Period: Two (2) years from date of Substantial Completion.

1.9 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Wood shingles: 200 sq. ft of each type, in unbroken bundles.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain each type of product from single source from single manufacturer.

2.2 WOOD ROOF SHAKES

A. Wood shakes to match the existing wood shakes in size, texture, finish, and wood type.

B. Split Cedar Shakes: Heavy hand-split and resawn western red cedar shakes; rough split face and sawn back to match the existing in texture, size, and finish.

1. Grade:
   a. Roof: No. 1.
   b. Starter Courses: No. 1.
2. Length: Match Existing, with 15-inch- long starter course.
3. Thickness: Match Existing at butt.

C. Cedar Shake Ridge Units: Site-fabricated, western red cedar caps for hips of same type and grade as exposed roof shakes, width to match existing; beveled, alternately overlapped, and nailed.

1. Length: Match Existing.
2. Thickness: Match Existing.at butt.

2.3 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide roofing materials identical to those of assemblies tested for fire resistance in accordance with ASTM E108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

1. Wood Products: Class B.
   a. Fire-Retardant Treatment: Exterior-type pressure treatment complying with AWPA U1 and AWPA T1.
   b. Accelerated Weathering: Subject test specimens to ASTM D2898 Method A before testing.
   c. Identification: Attach a label to each bundle of wood products; include identification mark of testing agency acceptable to authorities having jurisdiction and identify manufacturer, chemical treatment, method of application, purpose of treatment, and warranties available.

B. Grading Rules: Provide wood products that comply with CSSB grading rules for products indicated.

1. Identification: Attach a label to each bundle of wood products that identifies manufacturer, type of product, grade, dimensions, and identification mark of grading agency acceptable to authorities having jurisdiction.

2.4 WOOD TREATMENTS

A. Fire-Retardant Treatment: Exterior type, pressure-treated units.

B. Identification: Attach a label to each bundle of shingles or shakes; identify manufacturer, references to model-code approval, type of product, grade, dimensions, and approved grading agency.

1. Include chemical treatment, method of application, purpose of treatment, and warranties available.

2.5 UNDERLAYMENT AND INTERLAYMENT MATERIALS

A. Roof Felt Underlayment: ASTM D 226, Type I, asphalt-saturated organic felt.

1. 30 pound felt.

2. Use as underlayment and shake interlayment.

B. Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D 1970, minimum of 40 mils (1.0 mm) thick; slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release-paper backing; cold applied.

1. Products:
   a. Slopeshield ® Breathable Underlayment
   b. Grace, W. R. & Co.; Grace Ice and Water Shield.
   c. Henry Company; Perma-Seal PE.
   d. Owens Corning; WeatherLock M.
   e. Approved Equal

2.6 ACCESSORIES

A. Wood Lath Strip: Western red cedar, clear heartwood, minimum width 1-1/2 inches (38 mm).

B. Ventilation Matrix: Manufacturer's standard, compression-resisting, three-dimensional, nonwoven, entangled filament, nylon mat designed to permit air movement and to drain incidental moisture by gravity.

1. Products:
   a. Benjamin Obdyke: Cedar Breather Ventilated Underlayment
   b. Keene Building Products; Viper CDR Vent
   c. Advanced Building Products; CedAir-Mat.

C. Roofing Nails: ASTM F 1667; Stainless steel (type 304 or 316) wire nails, sharp-pointed, and of sufficient length to penetrate a minimum of 3/4 inch (19 mm) into sheathing.

D. Underlayment Nails: Stainless steel wire nails with low-profile metal or plastic caps, 1-inch-minimum diameter.

1. Provide with minimum 0.0134-inch-thick metal cap, 0.010-inch- thick power-driven metal cap, or 0.035-inch-thick plastic cap; and with minimum 0.083-inch-thick ring shank or

0.091-inch-thick smooth shank of length to penetrate at least 3/4 inch into roof sheathing or to penetrate through roof sheathing less than 3/4 inch thick.

2.7 WOOD SHINGLE SIDING AND UNDERCOURSING

A. Tapersawn Smooth-Sawn Cedar Shingles: Western red cedar shingles.

1. Grade: No. 1.
2. Size: Match Existing.
3. Finish: Match Existing.
   a. Color: Match Existing.

B. Cedar Undercoursing Shingles: Smooth-sawn western red cedar shingles.

1. Size: Length matching siding and in manufacturer's standard thickness.
2. Grade: No. 4, Undercoursing.
3. Finish: Match existing siding.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through roofing.
3. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROOF UNDERLAYMENT INSTALLATION

A. Single-Layer Roof Felt Underlayment: Install single layer of roof underlayment on roof deck perpendicular to roof slope in parallel courses. Lap sides a minimum of 6 inches (50 mm) over underlying course. Lap ends a minimum of 12 inches (100 mm). Stagger end laps between succeeding courses at least 72 inches (1830 mm). Fasten with felt underlayment nails.

1. Install underlayment on 100% of roof deck including areas covered by self-adhering sheet underlayment. Lap sides of felt over self-adhering sheet underlayment not less than 6 inches (75 mm) in direction to shed water. Lap ends of felt not less than 12 inches (150 mm) over self-adhering sheet underlayment.

B. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install and lapped in direction to shed water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm,) staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover underlayment within seven days.

1. Eaves: Extend from edges of eaves 36 inches (914 mm) beyond interior face of exterior wall.

2. Hips: Extend 18 inches (450 mm) on each side.

3.3 INSTALLATION OF WOOD ROOF SHAKES

A. Install wood roof shakes in accordance with manufacturer's written instructions and recommendations in CSSB's "New Roof Construction Manual" and NRCA's "The NRCA Roofing Manual: Steep-Slope Roofing Systems."

B. Install drainage mat perpendicular to roof slope in parallel courses, butting edges and ends to form a continuous layer, and fasten to roof deck.

C. Install wood-shake starter course along lowest roof edge.

1. Install in double layer with joints offset a minimum of 1-1/2 inches.

2. Extend to match existing and maintain a minimum 1-1/2 inches over fascia.

D. Install first course of wood roof shakes directly over starter course and in continuous straight-line courses across roof deck. Install second and succeeding courses of wood roof shakes in continuous straight-line courses across roof deck.

1. Interlay 18-inch- wide strip of felt over top portion of first and each succeeding course. Set bottom edge of felt interlayment at a distance of twice the weather-exposure dimension above the shake butt. Stagger fasten to roof deck with felt-underlayment nails.

2. Offset joints between shakes in succeeding courses a minimum of 1-1/2 inches.

3. Space shakes a minimum of 3/8 inch and a maximum of 5/8 inch apart (match existing spacing unless spacing does not fall within ranges indicated, in which case, space to the nearest spacing allowed).

4. Fasten each shake with two nails spaced 3/4 to 1 inch from edge of shake and 1-1/2 to 2 inches above butt line of succeeding course. Drive fasteners flush with top surface of shakes without crushing wood.

5. Maintain weather exposure to match existing shakes.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Supply, fabrication, and installation of stainless steel drip edge flashings and counterflashings.

B. Related Sections include the following:
1. Section 04 01 40.91 – Stone Restoration
2. Section 06 10 00 – Rough Carpentry
3. Section 07 13 27 – Waterproofing and Draiange System
4. Section 07 92 00 – Joint Sealants
5. Section 08 52 00 – Wood Windows
6. Section 09 91 00 – Painting

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date.
1. American Architectural Manufacturer's Association (AAMA)
   a. 611: Voluntary Specification for Anodized Architectural Aluminum.
   b. 2604: Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
2. ASTM International:
   a. A240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
   b. A653: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   c. A755: Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
   d. B32: Standard Specification for Solder Metal.
   e. B749: Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.
   f. C920: Standard Specification for Elastomeric Joint Sealants.
   g. C1311: Standard Specification for Solvent Release Sealants.
3. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
   a. Architectural Sheet Metal Manual.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordinate Work to ensure that adjacent areas are not adversely affected. Coordinate:
1. With Architect/Engineer
2. With other trades:
   a. To ensure that work done by other trades is complete and ready for sheet-metal Work.
   b. To avoid or minimize work on, or in immediate vicinity of, sheet-metal Work in progress.

c. To ensure that subsequent work will not adversely affect completed sheet-metal Work.

3. With interfacing and adjoining construction to provide leakproof, secure, and non-corrosive installation. Coordinate installation of flashing with stone repairs, wood repairs, and window installation.

1.4 SUBMITTALS

A. Product Data: For each product specified.
   1. Include Safety Data Sheets (SDS) for information only.

B. Samples: For each type of sheet-metal flashing, counterflashing, and trim. Construct typical lap splice, profiles, and end dam.

C. Installer Qualifications: Evidence that Installer's *existing company* has minimum five years of continuous experience in similar sheet-metal Work; list of at least five representative, successfully-completed projects of similar scope and size.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced firm that has successfully completed sheet-metal work similar in material, design, and extent to that indicated for Project. Must have successful installations of specified materials in local area in use for minimum of five years.
   1. Employ foreman with minimum five years of experience as foreman on similar projects, who is fluent in English, to be on Site at all times during Work. Do not change foremen during the course of the Project except for reasons beyond the control of the Installer; inform Architect/Engineer in advance of any changes.

B. Mockups: Build mockups to demonstrate aesthetic effects and set quality standards for fabrication and installation.
   1. Build mockup of flashing profiles for each wall flashing including seams, end dams, attachments, membrane flashing, and accessories.
   2. Approved mockups may become part of completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Sheet-Metal Members: Deliver, store, and handle materials in such a manner as to prevent damage to materials or structure.

B. Sealants, Coatings, and Miscellaneous Materials:
   1. Deliver materials to Site in original containers and packaging with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing.
   2. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or have been exposed to moisture.
   3. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by manufacturer. Protect stored materials from direct sunlight. Manufacturer's standard packaging and covering is not considered adequate weather protection.
   4. Handle materials to avoid damage.

5. Conspicuously mark damaged or opened containers or containers with contaminated materials, and remove from Site as soon as possible.
6. Remove and replace materials that cannot be applied within stated shelf life.

C. Limit stored materials on structures to safe loading capacity of structure at time materials are stored, and to avoid permanent deck deflection.

1.7 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to start of sheet-metal Work. Notify Architect/Engineer of conditions found to be different than those indicated in the Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

B. Comply with Owner's limitations and restrictions for Site use and accessibility.

C. Environmental Limitations: Install sheet-metal members when existing and forecast weather conditions permit sealants, coatings, and miscellaneous materials to be installed according to sealant, coating, or miscellaneous material manufacturer's written instructions and warranty requirements.

D. Handle and install materials in strict accordance with safety requirements required by sheet-metal manufacturer; GHS or Material Safety Data Sheets; and local, state, and federal rules and regulations. Maintain GHS or Material Safety Data Sheets with materials in storage area and available for ready reference on Site.

1.8 CHANGES IN WORK

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with the Contract Documents. Such conditions may interfere with the Work and may consist of damage or deterioration of the substrate or surrounding materials that could jeopardize the integrity or performance of the Work.
   1. Notify Architect/Engineer of conditions that may interfere with the proper execution of the Work or jeopardize the performance of the Work prior to proceeding with the Work.

1.9 WARRANTY

A. Contractor's Warranty:
   1. Written warranty, signed by Contractor, including:
      a. Replace sheet-metal Work that does not comply with requirements; that has corroded surface, coating that fails cohesively or adhesively, or other surface defects or imperfections; or that deteriorates in a manner not clearly specified by material supplier's data as an inherent quality of the material for the application indicated.
      b. Remove and replace sealant that has failed cohesively or adhesively; or that deteriorates in a manner not clearly specified by sealant manufacturer's data as an inherent quality of the material for the application indicated.
      c. Repair or replacement, to satisfaction of Owner, of other work or items which may have been displaced or damaged as consequence of defective Work.
      d. Warranty does not include deterioration or damage from changes in sheet-metal environment from that reasonably anticipated at Substantial Completion, or physical damage from adjacent activities.
   2. Warranty Period: Two years after Substantial Completion date.

PART 2 PRODUCTS

2.1 SHEET METAL

A. For flashings at masonry wall areas such as stone masonry including window sill flashings :
   1. Stainless-Steel Sheet: ASTM A240, Type 304; No. 4 finish; 26 gage.

2.2 MEMBRANE MATERIALS

A. High-Temperature Self-Adhering Flashing: Modified bituminous; 40-mil thick, self-adhering sheet consisting of rubberized asphalt laminated to a cross-laminated polyethylene film with release liner backing, stable at temperature of 240 degrees F minimum.

   1. Grace Construction Products; Grace Ultra HT
   2. Henry; Bluskin, SA HT
   3. Architect/Engineer approved equal.

B. Manufactured Reglets: 300 series stainless steel, 1/8 in. thick reglet. Dimensions as shown in on Drawings. Provide reglets in largest lengths possible without exceeding 10 ft. Attach reglets with stainless steel Zamac Nailins by Powers Fasteners (masonry backup) and 300 series self-tapping stainless steel screws (steel backup).

2.3 AUXILIARY MATERIALS:

A. Termination Bar: Aluminum bars, approximately 1-inch wide by 1/8-inch thick; with predrilled holes 8 inches on center.

B. Metal to Metal Lap Sealant: Non-skinning butyl sealant Refer to Section 07 92 00 Joint Sealants.

C. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Size fasteners to provide penetration into substrate of at least 1 1/4 inches for nails and 3/4 inches for wood screws.

2.4 FABRICATION

A. Custom fabricate to comply with recommendations in SMACNA's Architectural Sheet Metal Manual, that apply to design, dimensions, metal, and other characteristics of item indicated. Conform to dimensions and profiles shown in SMACNA's Architectural Sheet Metal Manual, unless requirements that are more stringent are indicated.
   1. Obtain field measurements for accurate fit before fabrication.
   2. Shop fabricate items where practicable.

B. Fabricate without excessive oil canning, buckling, or tool marks that are visually objectionable in opinion of Architect/Engineer, and true to line and levels indicated, with exposed edges folded back to form hems.

C. Sealed Joints: Form non-expansion but movable joints in metal to accommodate elastomeric sealant and in compliance with recommendations in SMACNA's Architectural Sheet Metal Manual.

D. Conceal fasteners, where possible, on exposed-to-view sheet-metal flashing and trim, unless otherwise indicated.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-corrosive metal, and in thickness not less than that of metal being secured.

F. Fabrications for Openings in Walls: Fabricate flashings to extend to next existing masonry joint beyond the end of the steel lintel. Form flashing with 2-inch-high fully welded end dams.

G. Wall flashings

1. Fabricate in minimum 8-foot-long, but not exceeding 10-foot-long, sections. Provide laps and splices as indicated on Drawings.
    a. Miter corners, seal, and solder or weld watertight.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer for compliance with requirements and other conditions affecting performance of sheet-metal flashings and trim.
1. Ensure that work done by other trades is complete and ready for sheet-metal Work.
2. Verify that areas and conditions under which sheet-metal Work is to be performed permit proper and timely completion of Work.
3. Notify Architect/Engineer in writing of conditions which may adversely affect installation or performance of sheet-metal Work and recommend corrections.
4. Do not proceed with installation of sheet-metal flashings and trim until adverse conditions have been corrected and reviewed by Architect/Engineer.
5. Commencing sheet-metal Work constitutes acceptance of Work surfaces and conditions.

3.2 INSTALLATION

A. General: Install sheet-metal flashings and trim according to recommendations in SMACNA's Architectural Sheet Metal Manual and as indicated.

B. Install sheet-metal flashing and trim to fit substrates and to result in watertight performance.
1. Install true to line and levels indicated.
2. Where exposed, install without excessive oil canning, buckling, or tool marks.
3. Provide uniform, neat seams with minimum exposure of solder, welds, or sealant.
4. Do not torch cut sheet metal.

C. Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints no more than 10 feet apart, with no joint within 24 inches of corner or intersection.

D. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

E. Anchor sheet metal flashing and trim and other components of Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required.

1. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners

F. Seal joints with sealant as required for watertight construction.

G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter.

H. Membrane Flashing:

1. Clean and prepare substrates per manufacturer's written specifications. Provide clean, dust-free, and dry substrate for membrane application.
2. Prime vertical substrates including but not limited to concrete, concrete masonry, and exterior sheathing to receive new flashing. Do not apply primers to substrate areas in which membrane flashing will not be in direct contact as primers may have detrimental effect to other materials including sealant bond along termination.
3. Apply 4 in. by 4 in. membrane patches over all anchor protrusions or other sharp projections. Rigid insulation may be used to provide smooth transitions over bolt heads. Use of rigid insulation is limited to areas where 1 inch width of clear cavity can be maintained between outside face of insulation and back face of brick veneer.
4. Fold membrane into corners to conform to end dam profiles. Do not cut membrane at corner locations.
5. Install runs of membrane in largest horizontal lengths possible. Provide 6 in. minimum lap seams. Offset laps a minimum of 12 in. from joint in metal flashing and 24 in. from corners.
6. Use roller or other means to eliminate wrinkles, fish-mouths, or folds. Remove and replace membrane flashing in areas where wrinkles, fish-mouths, and/or folds cannot be eliminated.
7. Terminate/trim membrane back 1/4 inch from face of cladding to avoid direct exposure to ultra-violet light.
8. Install manufacturer's mastic along all exposed seams, joints, etc.

3.3 CLEANING

A. At the end of each workday, clean Site and Work areas and place rubbish, empty cans, rags, and other discarded materials in appropriate containers.

B. After completing sheet-metal Work:
1. Clean spillage and soiling from adjacent surfaces using cleaning agents and procedures recommended by manufacturer of affected surface. Exercise care to avoid scratching or damage to surfaces.
2. Repair surfaces stained, marred, or otherwise damaged during roofing Work.
3. Clean up debris and surplus materials and remove from Site.

3.4 PROTECTION

A. Protect sheet-metal flashings and trim from damage and wear during remainder of construction period.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Surface preparation and installation of sealant in joints.

B. Related Sections:
1. Section 04 01 40.91 – Stone Restoration
2. Section 04 96 50 - Reassembly of Historic Materials
3. Section 06 03 12 - Historic Wood Repair
4. Section 07 13 27 - Waterproofing and Drainage System
5. Section 07 62 00 – Sheet Metal Flashing and Trim
6. Section 08 52 01 – Wood Windows

1.2 REFERENCES

A. Reference Standards: Latest edition as of Specification date
1. ASTM International
   a. C920: Standard Specification for Elastomeric Joint Sealants
   b. C1193: Standard Guide for Use of Sealants
   c. C1248: Standard Test Method for Staining of Porous Substrate by Joint Sealants
   d. C1330: Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.
   e. C1521: Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints

1.3 SUBMITTALS

A. Product Data: Sealant manufacturer’s literature including written instructions for evaluating, preparing, and treating substrate; technical data including tested physical and performance properties; and installation instructions.
1. Include temperature ranges for storage and application of materials, and special cold-weather application requirements or limitations.
2. Data sheet for substrate cleaner and substrate primer recommended by sealant manufacturer for specific substrate surface and conditions.
3. Safety Data Sheets (SDS) for information only; safety restrictions are sole responsibility of Contractor.

B. Samples:
1. Sealant manufacturer’s color sample card, either printed or with thin sealant beads, showing range of colors available for each product exposed to view.

C. Manufacturer’s Reports and Certifications.
1. Prior to sealant installation, submit report from sealant manufacturer with results of sealant compatibility, sealant and substrate staining, and mock-up adhesion tests.

a. Report shall state that materials which come into contact with or in close proximity to sealant have been tested.
b. Report shall include sealant manufacturer's interpretation of test results relative to material performance, potential staining of sealant and substrates, dirt accumulation of sealant, and dirt runoff from sealant.
c. Report shall include sealant manufacturer's recommendations for substrate preparation and primer needed to obtain durable adhesion and installation procedures successfully used in mockups and field tests.
d. Product Certificates: For each sealant product, accessory, related products, joint type, and substrate, provide sealant manufacturers' written approval of their products' use for specified conditions; based on mockups and field tests.

D. Sample Warranty: Copy of sealant manufacturer's warranty, stating obligations, remedies, limitations, and exclusions. Submitted with bid.

E. Following completion of Work, submit sealant manufacturer's inspection report of completed sealant installation and completed warranty; submit completed Installer warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Must have installations of specified materials in local area in use for minimum of five years.
1. Employ foreman with minimum of 5-years experience as foreman on similar projects, to be on site at all times during Work.

B. Mockups: Install 5 feet of sealant in each type of joint to verify and set quality standards for materials and installation procedures, and to demonstrate aesthetic effects and ability to match existing conditions.
1. Include each type of backing material, sealant, primer, broadcast sand texture treatment, and other related products.
2. Mockups shall be accessible or located as indicated by Owner's Representative.
3. Notify Owner's Representative and Architect/Engineer seven days in advance of date when mockups will be constructed.
4. Field-Adhesion Testing: After sealants have cured, perform field-adhesion tests according to ASTM C1521.
a. Conduct tests for each type of sealant and joint substrate, with and without primer.
b. Arrange for tests to take place with sealant manufacturer's technical representative present.
c. Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Use alternate materials or modify installation procedure, or both, for sealants that fail to adhere to substrates.
5. If Architect/Engineer determines mockup does not comply with requirements, modify mockup or construct new mockup until mockup is approved.
6. Mock-ups, when approved by Owner's Representative and Architect/Engineer, will become standard for Work.
7. Approved mockups may become part of completed Work if undisturbed at time of Substantial Completion.
8. Do not begin joint sealant Work until mock-up is accepted by Owner's Representative and Architect/Engineer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original packages with seals unbroken, labeled with sealant manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, or installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or which have been exposed to moisture.

C. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by sealant manufacturer. Protect stored materials from direct sunlight. Sealant manufacturer's standard packaging and covering is ***not*** considered adequate weather protection.

D. Limit stored materials on structures to safe loading of structure

E. Handle materials to avoid damage.

F. Conspicuously mark wet or damaged materials and remove from site as soon as possible.

G. Remove and replace materials that cannot be applied within stated shelf life.

1.6 PROJECT CONDITIONS

A. Verify existing dimensions and details prior to installation of materials. Notify Architect/Engineer of conditions found to be different than those indicated in Contract Documents. Architect/Engineer will review situation and inform Contractor and Installer of changes.

B. Comply with Owner's limitations and restrictions for site use and accessibility.

C. Environmental Limitations: Install sealant when existing and forecast weather conditions permit sealant to be installed according to sealant manufacturer's written instructions and warranty requirements.
   1. Do not install sealant when ambient or substrate temperatures are below 40 degrees F or are expected to fall below 40 degrees F in the next 12 hours.
   2. Do not proceed with installation during inclement weather except for temporary work necessary to protect building interior and installed materials. Remove temporary work and Work that becomes moisture damaged.

1.7 UNFORESEEN CONDITIONS

A. During rehabilitation work, existing conditions may be encountered which are not known or are at variance with drawings and specifications. Such conditions may interfere with Work and may consist of damage or deterioration of substrate or surrounding materials or components that could jeopardize integrity or performance of new sealant.

B. Notify Architect/Engineer of conditions that may interfere with proper execution of Work or jeopardize integrity of new sealant prior to proceeding with Work.

1.8 WARRANTY

A. Manufacturer's Warranty:
   1. Warranty Period: 20 years from date of Substantial Completion.

B. Sealant Installer's Warranty:
   1. Completed warranty form at end of Section, signed by Installer.
      a. Repair or replace sealant that does not comply with requirements; that does not remain watertight; that fails in adhesion, cohesion, or general durability; or that deteriorates in manner not clearly specified by submitted sealant manufacturer's data as inherent quality of material for application indicated.
      b. Removal and replacement with new bond breaker materials.
      c. Labor and materials to perform warranty work.
      d. Warranty does not include sealant deterioration or failure due to following.
         1) Excessive joint movement caused by structural settlement or errors attributable to design or construction, resulting in stresses in sealant exceeding sealant manufacturer's written specifications for sealant elongation or compression.
         2) Deterioration or failure of sealant due to failure of substrate prepared according to requirements.
         3) Mechanical damage caused by individuals, tools, or other outside agents.
         4) Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.
   2. Warranty Period: 2 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain joint sealants from single manufacturer for each sealant type.

2.2 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, 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.

B. Colors of Exposed Joint Sealants: As selected by Contracting Officer from manufacturer's full range.

2.3 ELASTOMERIC JOINT SEALANTS

A. General:
   1. Comply with ASTM C920 and other requirements indicated.
   2. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing on similar projects, mockups and preconstruction testing for this project, and field experience.
   3. Select products based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.

4. Source Limitations: Obtain each type of joint sealant through one source from single manufacturer.
5. Colors of Exposed Joint Sealants: Selected and approved in writing by Architect/Engineer, from sealant manufacturer's full range to match existing colors.

B. One part Silicone, Non-staining & Non-bleeding, Nonsag (± 50% movement). Color to be selected by Owner.
1. DOWSIL 756 SMS by Dow Chemical Company
2. DOWSIL 790 Silicone Building Sealant by Dow Chemical Company
3. SCS9000 SilPruf NB by Momentive Performance Materials (GE).
4. 890 NST by Pecora Corporation
5. Approved equal.

C. Preformed Joint Seals: In sizes to fit joint widths indicated.
1. DOWSIL 123 Silicone Seal manufactured by Dow Chemical Company
2. Sika Silbridge- 300 Manufactured by Sika Corporation.
3. Sil-Span manufactured by Pecora Corporation.
4. UltraSpan US1100 manufactured by Momentive Performance Materials, Inc.

2.4 AUXILIARY MATERIALS

A. General: Joint filler, bond breaker, primers, surface cleaners, masking tape, and other materials recommended by sealant manufacturer, that are non-staining and compatible with substrates; based on mockups, preconstruction testing, and sealant manufacturer's previous testing and experience.

B. Bi-cellular or closed cell non-gassing backer rod with configurations shown on Drawings. Size backer rod appropriately per manufacturer recommendations. Open cell backer rod will NOT be permitted.
1. Bi-Cellular Backer-Rod by Nomaco.
2. Sof-Rod by Nomaco
3. Expand-O-Foam by Williams Products
4. Approved Equal

C. Joint Primer: Type recommended by the sealant manufacturer for the specific joint surface and conditions.

D. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

E. Broadcast Sand: Refer to Section 04 05 00: Masonry Mortar and Grout for mortar aggregate to be used as broadcast sand.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer and sealant manufacturer's representative for compliance with requirements and for other conditions affecting sealant performance.
1. Verify dimensions of sealant joints at the project site by field measurement so that all proper sealant profiles will be accurately maintained.

2. Notify Architect/Engineer in writing of conditions which may adversely affect sealant installation or performance, including joints with widths less than those allowed by sealant manufacturer for applications indicated. Do not proceed with sealant installation until these conditions have been corrected and reviewed by Architect/Engineer.
3. Installation of sealant system indicates acceptance of surfaces and conditions.

3.2 PROTECTION

A. Take precautions to ensure safety of people, including building users, passers-by, and workers, and animals, and protection of property, including adjacent building elements, landscaping, and motor vehicles.
   1. Erect temporary protective canopies and walls, as necessary, at walkways and at points of pedestrian and vehicular access that must remain in service during Work.

B. Prevent construction dust, debris, and other materials from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

C. Protect paving and sidewalks, and adjacent building areas from mechanical damage due to scaffolding and other equipment.

D. Limit access to Work areas.

E. Comply with sealant manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products.

F. Cover adjacent surfaces with materials that are proven to resist sealant.

G. Assume responsibility for injury to persons or damage to property due to Work, and remedy at no cost to Owner.

3.3 SEQUENCING

A. Sealant installation should not occur prior to cleaning or repointing. Sequence sealant installation with coating installation. Coordinate with other trades as required.

3.4 SURFACE PREPARATION

A. Remove existing sealant and other foreign material from joints.

B. Repair damaged or deteriorated substrate surfaces according to sealant manufacturer's written instructions and as approved by Architect/Engineer.

C. Clean joint substrates immediately before installing sealant, to comply with sealant manufacturer's written instructions based on mockups and preconstruction testing.
   1. Remove from substrate foreign material that could interfere with adhesion of sealant, including dirt, dust, existing sealant, oil, grease, and surface coatings.
   2. Provide dry substrate; prevent wetting of substrate prior to sealant installation.
   3. Clean, porous substrates, such as concrete, masonry, stone, wood, by brushing, grinding, blast-cleaning, mechanical-abrading, or combination of methods to produce clean, sound substrate capable of developing optimum bond with sealant. Remove laitance and form-release agents from concrete. Remove loose particles remaining after cleaning operations by vacuuming or blowing out joints with oil-free, compressed air.

4. Clean nonporous surfaces, such as metal, with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of sealant.
5. Joints with silicone sealant should generally be masked as subsequent cleanup of spillage and smears may be very difficult.

D. Install masking tape on adjacent surfaces to prevent permanent staining or damage due to contact with sealant or cleaning methods to remove sealant smears. Remove tape immediately after tooling sealant, without disturbing sealant.

3.5 INSTALLATION OF JOINT SEALANT

A. General: Comply with sealant manufacturer's written installation instructions for products and applications indicated, based on mockups and preconstruction testing.

B. Joint Priming: Prime joint substrates were recommended in writing by sealant manufacturer, based on mockups and preconstruction testing. Apply primer to comply with sealant manufacturer's written instructions.
1. Confine primer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
2. Limit priming to areas that will be covered with sealant in same day. Unless recommended otherwise by sealant manufacturer, reprime areas exposed for more than 24 hours.

C. Install sealant backer and position to produce cross-sectional shape and proper depth of installed sealant.
1. Use properly sized backer. Do not use multiple-backer units or braided-backer units to accommodate wide joints.
2. Install backer with device that will provide consistent depth between substrate surface and outer surface of backer.
3. Do not leave gaps between ends of sealant backers.
4. Do not stretch, twist, puncture, or tear sealant backers.
5. Remove wet backers and replace with dry materials.

D. Install bond-breaker tape at back of designated joints.

E. Install sealant immediately after installing backer material; to produce uniform, cross-sectional shape and depth; to directly contact and fully wet joint sides and backer material; and to completely fill recesses in joint configuration.
1. Install sealant flush with surface.
2. Immediately after sealant application and before skinning or curing begins, tool joint with slightly concave surface, compressing sealant into joint to form smooth, uniform sealant bead; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Do not use tooling agent.

F. At joints between stone units, broadcast mortar and onto the sealant while wet and before a surface skin has formed. Brush away loose sand once sealant has sufficiently cured.

3.6 INSTALLATION OF PREFORMED SILICONE SEALS

A. General: Comply with seal manufacturer's written installation instructions for products and applications indicated, based on mockups and preconstruction testing.

B. Apply bead of silicone sealant to each side of joint, at least 3/8-inch wide and 1/4 inch inside masking tape.

C. Within ten minutes of sealant application, press silicone seal into sealant to wet extrusion and substrate. Use roller that approximately matches width of preformed seal to apply consistent pressure and ensure uniform contact between sealant and both seal and substrate.

D. Complete installation of seal system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At vertical joints, lap upper seal over lower seal. At ends of joint, cut seal with razor knife.

3.6 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Manufacturer's representative will perform non-destructive and destructive field adhesion tests on sealant in accordance with ASTM C1521.
   1. Destructive testing:
      a. Cut 6-inch-long tail of sealant loose from substrate.
      b. Mark tail 1 inch from adhesive bond.
      c. Grasp tail 1 inch from adhesive bond and pull until tail extends to two times published movement capability of sealant. If sealant has not failed, continue pulling to failure.
      d. Record elongation at failure and if failure was adhesive or cohesive.
      e. Observe sealant for complete filling of joint with absence of voids, and for joint configuration in compliance with requirements. Record observations and sealant dimensions
   2. Test reports shall include date when sealant was installed, name of person who installed sealant, test date, test location, and whether primer was used.
   3. Immediately after testing, Contractor shall replace failed sealant in test areas. Neatly cut out and remove failed sealant, prepare and prime surfaces, and install new sealant. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
   4. Sealant not evidencing adhesive failure from testing or noncompliance with requirements will be considered satisfactory.
   5. The Architect/Engineer reserves the right to perform adhesion testing at up to twenty locations during Phase I and twenty additional locations in Phase II on the building as the work progresses. The number of test areas will be increased if the installed sealant fails to pass the test.
   6. Where Architect/Engineer determines that sealant has failed adhesively from testing or does not comply with requirements, additional testing will be performed to determine extent of non-conforming sealant. Neatly cut out and remove non-conforming sealant, prepare and prime surfaces, and install new sealant. Perform field adhesion tests on new sealant. Additional testing and replacement of non-conforming sealant shall be at Contractor's expense.

3.7 CLEANING AND PROTECTION

A. Clean off excess sealant or sealant smears as Work progresses by methods and with cleaning materials approved in writing by sealant manufacturers and manufacturers of products in which joints occur.

B. Protect sealant during and after curing period from contact with contaminating substances and from damage, so sealants are without deterioration or damage at time of Substantial Completion. If damage or deterioration occurs, neatly cut out and remove damaged or deteriorated sealant, prepare and prime surfaces, and install new sealant. Replace sealant immediately so new sealant is indistinguishable from original Work.

END OF SECTION

SECTION 08 52 01

WOOD WINDOWS

PART 1 GENERAL

1.1 SUMMARY

A. Wood windows: This Section includes new wood windows, to match existing, installed in existing masonry openings as indicated on the Drawings.

B. Furnish all labor, materials, tools, and equipment necessary to complete the installation of new wood window components as shown on the Drawings and specified herein.
   1. Remove and salvage wood shutters for reinstallation.
   2. Install new wood window frame and fixed sash, exterior casing, and sill.
   3. Clean, prime and install perimeter sealant as specified in Section 079200 and install sheet metal and membrane flashing and trim as specified in Section 076200.

C. Related Sections include the following:
   1. Section 02 41 19 - Selective Structure Demolition
   2. Section 06 03 12 – Historic Wood Repair
   3. Section 06 10 00 – Rough Carpentry
   4. Section 07 62 00 – Sheet Metal Flashing and Trim
   5. Section 07 92 00 - Joint Sealants
   6. Section 09 91 00 - Painting

1.2 WINDOW SYSTEM DESCRIPTIONS

A. Wood window components include the following:
   1. Frame Components: perimeter frame for fixed sash and sill
   2. Sash Components: Fixed sash with stile and rail and true divided muntins.
   3. Exterior Trim: Exterior casing, and exterior wood jamb framing for existing wood shutters.
   4. Interior Finishes: Repairs to existing interior plaster and wood finishes.

B. Glazing components include glass, setting blocks, glazing stops, and glazing sealants.

C. Other components include anchorage of the sash and trim.

1.3 SUBMITTALS

A. Product Data: manufacturer's specifications.

B. Shop Drawings: Window location chart; typical window elevations; details of assemblies, anchorage, and glazing details for factory-glazed units. Drawing details shall also depict adjacent existing construction to remain or reinstalled. Show field-verified dimensions and tolerances for all installations in existing openings.

C. Samples: Of the glass and coatings specified, 2 by 4 inches in size.

D. Qualification Data: Submit qualifications data for manufacturer and Installer qualified to perform the work specified herein.

E. Sample Warranties:
   1. Submit copies of all manufacturer and installer warranties applicable to the work of this Section, for review and approval by the Architect/Engineer and the Owner.

1.4 QUALITY ASSURANCE

A. Design Criteria
   1. Wall openings: Accommodate allowable building wall construction without stressing or deforming window units or overstressing anchorage.
   2. Moisture changes: Accommodate wood shrinking and swelling caused by ambient conditions at the project, without stressing window units, overstressing anchorage, or causing sash to bind.

1.5 MOCK-UP

A. Prepare one full-size mockups of the specified window frame and sash type (fixed windows) to verify installation techniques, demonstrate the aesthetic effects and quality of materials, and demonstrate performance, and execution.
   1. Use materials and methods proposed for completed work.
   2. Coordinate the installation of the mock-ups with the work of other trades directly responsible for the repair of the surrounding construction.

B. Obtain Architect/Engineer's approval of the completed mock-up after installation is complete.

C. Maintain approved mock-up during construction in an undisturbed condition to serve as a baseline standard for quality and workmanship. Provide temporary protection as required to prevent incidental damage, or damage incurred due to the work of other trades, until Substantial Completion of the project.

D. Approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 WARRANTIES

A. The contractor shall submit a written warranty agreeing to repair or replace (at no cost to the Owner) improperly designed components, defective (or failed) materials, components, and workmanship of the window system for a period of two years from the date of substantial completion. This warranty shall be in addition to the manufacturers standard 10-year written warranty covering improperly designed components and defective (or failed) materials, components, and workmanship of the windows system

1.7 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at the Project site.
   1. Review and finalize construction schedule and verify availability of selected window, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   2. Review, discuss, and coordinate the interrelationship of wood window with other exterior wall components. Include provisions for anchoring, flashing, weeping, sealing perimeters, selective demolition of interior finishes, protection of finishes to remain, and reinstalling existing shutters.
   3. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain wood windows from a single source from single manufacturer.

2.2 WOOD WINDOWS

A. Wood Frame and Fixed Wood Window Sash with 12-Lites: All new wood constructed of kiln dried pine, water repellent, preservative treated in accordance with WDMA I.S. 4-07'A.
   1. Frame: Existing windows do not have a frame. The reveal of the sash as viewed from the interior should match the existing. The new frame should be sized to match the existing reveal.
      a. Depth: Frame depth to match existing abandoned wood frame currently in place, approximately 3", verify in field.
      b. Profile: Frame profile of fabricator's standard shapes and profiles to match the existing reveal of the sash.
      c. Sill: Projecting sill of fabricator's standard shapes and profiles notched to lap over existing outer wood sill
      d. Corner Construction: Wood parts are mortise-and-tenon.
   2. Sash:
      a. Thickness: Match sash of existing windows.
      b. Exterior: Match sash of existing windows.
      c. Corner Construction: Wood parts are mortise-and-tenon.
      d. True Divided Lites:
         1) Muntin is constructed of wood in width to match muntins of existing windows.
            a) Profile: Architect to select from manufacturer's standard profiles.
   3. Casings and Trim:
      a. Exterior casings:
         1) Clear, fine-grained, kiln-dried Southern pine
         2) Cut and install to create continuous reveal around perimeter of sash and anchored to the existing window frame. Paint to match exterior of windows.
      b. Interior quarter round:
         1) Clear, fine-grained, kiln-dried Southern pine
         2) Standard wood quarter round trim anchored to existing wood framing at jambs and head. Paint to match exterior of windows.
      c. Interior casing at sill:
         1) Clear, fine-grained, kiln-dried Southern pine
         2) Anchored to the existing window frame and sized to conceal the vertical leg of the sheet metal flashing pan at the interior sill. Paint to match exterior of windows.
   4. Exterior glazed.

B. Surface Finish:
   1. Exterior Finish - Wood
      a. Standard Paint Colors:
         1) Exterior wood trim is manufacturer's standard prime and paint process for exterior applications. Color is to be selected from the manufacturer's standard colors.
   2. Interior Finish - Wood

a. The interior paint color is to match existing.

C. Weatherstripping
1. High-density felt pile

2.3 GLAZING MATERIALS

A. Glass:
1. Uncoated clear float glass, 1/4 inch thick.

B. Structural Glazing Tape:
1. Semi-rigid, high-density single-sided foam glazing tape.
2. Compatible with silicone glazing sealant
3. Materials:
a. V2100 Thermalbond Tape manufactured by CRL Saint- Gobain/Norton
b. Approved equal.

C. Glazing Sealant: Refer to Section 07 92 00.

2.4 FABRICATION

A. Fabricate wood windows in sizes to fit existing window openings with wood components and framing to match sizes and profiles of existing windows and following field verification of all dimensions. Include a complete system for installing and anchoring windows.

B. Glaze wood windows in the factory.

C. Complete fabrication, assembly, finishing, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, shimming and fitting at Project site.

PART 3 EXECUTION

3.1 PROJECT CONDITIONS

A. Verify window openings by field measurements before fabrication of replacement windows.

B. Protection:
1. Identify areas of interior finishes to be removed prior to start of work.
2. Carefully remove existing interior wood finishes, as necessary, to perform repairs and salvaged for reinstallation.
3. Denote areas of interior plaster and gypsum board finish to be removed to perform repairs. Selectively demolish finishes, as necessary to perform repairs.
4. Protect surrounding interior and exterior surfaces and finishes from damage during the execution of window repair.
5. Protect unfinished work at the end of each day’s work activities.

3.2 DELIVERY, STORAGE AND HANDLING

A. Unload all materials with care and handle to avoid any damage or contamination of the materials.

B. Store all materials covered and protected from the weather in strict compliance with the manufacturer's recommendations. The location for storage shall be approved by Owner.

C. Store materials off the ground in clean, dry and restricted locations; protect from accidental opening and damage. Remove materials which are damaged or otherwise not suitable for use from the job site.

D. Deliver materials to the job site in manufacturer’s original and unopened containers and packaging bearing labels as to type of material, brand name and manufacturer. Employ specialized storage containers when directed by manufacturer. Delivered materials shall be identical to tested and approved materials.

E. Follow manufacturer’s label precautions.

3.3 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify rough opening dimensions, levelness of sill plate, and squareness of existing frames and construction.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSTALLATION

A. Comply with manufacturer’s written instructions for installing windows, and other components. For installation procedures and requirements not addressed in manufacturer’s written instructions.

B. Install wood trim and casings.

C. Reinstall interior wood finishes and replace interior plaster and gypsum board finishes.

3.5 ADJUSTING, CLEANING, AND PROTECTION

A. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.
   1. Keep protective films and coverings in place until final cleaning.

B. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

C. Touch-up any painted areas that may have been affected during the Work.

D. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer’s written instructions.

END OF SECTION

SECTION 09 20 00

PLASTER

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removal of plaster as necessary to perform repairs.
   2. Interior gypsum plastering, three-coat system over existing wood lath and new metal lath.

B. Related Sections
   1. Section 09 91 00 – Painting.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. C 28: Standard Specification for Gypsum Plasters
   2. C 35: Standard Specification for Inorganic Aggregates for Use in Gypsum Plaster
   3. C 631: Standard Specification for Bonding Compounds for Interior Gypsum Plastering
   4. C 841: Standard Specification for Installation of Interior Lathing and Furring.
   5. C 842: Standard Specification for Application of Interior Gypsum Plaster
   6. C 847: Standard Specification for Metal Lath
   7. C 1002: Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

1.3 SUBMITTALS

A. Qualifications Data: for Applicator.

B. Product Data: For each type of product.

1.4 QUALITY ASSURANCE

A. Qualifications
   1. Applicator shall have 5 years of experience in performing plaster work similar to that in these Drawings and Specifications.
   2. Use adequate number of experienced, qualified, and properly trained workers experienced in the necessary crafts and completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Samples: Prepare a stepped sample of the specified plaster system, including lath, to demonstrate surface finishing and installation techniques.

C. Mockups: Install mockups to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Install mockups for the following:
      a. Interior plaster repair at one location selected by the Architect to include one flat wall.
   2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack gypsum board panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

A. Environmental Limitations:
   1. Comply with ASTM C 842 requirements or gypsum or cement plaster manufacturer's written recommendations, whichever are more stringent.

B. Room Temperatures: Maintain temperatures at not less than 55 deg F or greater than 80 deg F for at least seven days before application of gypsum plaster, continuously during application, and for seven days after plaster has set or until plaster has dried.

C. Avoid conditions that result in gypsum plaster drying out too quickly.
   1. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
   2. Maintain relative humidity levels for prevailing ambient temperature that produce normal drying conditions.
   3. Ventilate building spaces in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

PART 2 PRODUCTS

2.1 EXPANDED-METAL LATH FOR PLASTER

A. Expanded-Metal Lath: ASTM C 847, cold-rolled carbon-steel sheet, ASTM A 653, G60 (Z180), hot-dip galvanized zinc coated.
   1. Diamond-Mesh Lath: Self-furring, 2.5 lb/sq. yd.

B. Fasteners for Attaching Metal Lath to Masonry or Concrete Substrates: coated steel screw anchor in pre-drilled hole, Tapcon Concrete Anchor or approved equal, 3/16-inch diameter.

2.2 MISCELLANEOUS MATERIALS FOR PLASTER

A. Accessories: Comply with ASTM C 841 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.

B. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

C. Bonding Compound: ASTM C 631.

2.3 GYPSUM PLASTER MATERIALS

A. Base-Coat Plasters: High-strength gypsum plaster with job-mixed sand for scratch and brown coats, complying with ASTM C 28 and with a minimum, average, dry compressive strength of 2800 psi per ASTM C 472 for a mix of 100 lbs. of plaster and 2 cu. ft. of sand.
   1. USG Structo-Base Gypsum Plaster or approved equal.

B. Aggregates for Base-Coat Plasters: ASTM C 35, sand.

C. Finish-Coat Plasters: Premixed blend interior plaster mix of gauging plaster and lime finish,
   1. USG Red Top Finish or approved equal.

D. Plaster Mixing: Comply with ASTM C 842 and manufacturer's written instructions for applications indicated.

PART 3 EXECUTION

3.1 REMOVAL OF PLASTER

A. Remove of plaster as necessary to perform structural repairs and window installation. Extend demolition and repairs over sufficient area such that patching will not be visually apparent. Extend removal areas if unsound or debonded plaster or deteriorated substrate is observed at perimeter of initial removal area.
   1. Removed area should be defined by vertical and horizontal lines, square with existing walls.
   2. Slightly undercut edges of removal area.

B. Where acquired, carefully remove, label, and salvage whole pieces of existing wood trim.

3.2 EXAMINATION AND PREPARATION

A. Examine areas and substrates including framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

D. General: Comply with ASTM C 842.
   1. Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface, except as needed to align to existing finished wall surfaces.
   2. Finish plaster flush with existing adjacent plaster surfaces indicated to remain.
   3. Provide plaster surfaces that are ready to receive field-applied painted finishes specified in other sections.

E. Set grounds at perimeter of work area to control thickness and plane of finished plasterwork. If needed, install 4-inch-wide plaster screeds, thickness within 1/16 inch of finished surface, to guide work.

3.3 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, other causes, and the work of other trades during remainder of the construction period.

3.4 INSTALLING PLASTER LATH AND ACCESSORIES

A. Expanded-Metal Lath: Install according to ASTM C 841.
   1. On Wood Lath:

a. Assess wood lath to verify it is secured in place. If not, remove plaster as necessary to secure lath to furring.
b. Install metal lath over secured wood lath substrate.

2. On Solid Surfaces, Not Otherwise Furred: Install self-furring, diamond-mesh lath.
3. Lap adjacent sections of lath minimum 2 inches and tie with 18-ga. tie wire.
4. Attach with fasteners at 7 inches on center both ways, providing at least 3/4 inch penetration into substrate and engaging two strands or a rib of the lath.

B. Accessories: Install according to ASTM C 841.

3.5 GYPSUM PLASTER APPLICATION

A. Mix plaster using a mechanical mixer. Prepare only one hour's supply at a time, and do not remix plaster that has begun to set. Add only enough water to achieve a workable consistency.

B. Bonding Compound: Apply on brick masonry, structural concrete, and cut edges of adjacent existing plaster.

C. Scratch Coat:
1. Sanded, 2 cu. ft. sand to 100 lbs. of plaster.
2. Minimum 5/8 inch thick from face of metal lath.
3. Apply with sufficient material and pressure to form good full keys into metal lath, and cross-rake.

D. Brown Coat:
1. Sanded, 3 cu. ft. of sand to 100 lbs. of plaster.
2. Apply after scratch coat has set firm and hard.
3. Bring out to grounds and straighten to true surface with rod and darby without use of additional water. Leave rough and open to receive finish coat.

E. Finish Coat:
1. Allow brown coat to fully set but not completely dry. If needed, lightly mist brown coat with water.
2. Scratch in thoroughly, then immediately double back to a thickness of not more than 1/16 inch and trowel to a smooth, dense finish.

F. Repair or replace plaster to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

G. Reinstall salvaged wood trim, tight to plaster wall. Provide compatible paintable filler if needed at ends of pieces.

3.6 CLEANING

A. Remove temporary protection and enclosure of other work.

B. Repair surfaces stained, marred, or otherwise damaged during plaster or drywall application. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on new and existing interior plaster, gypsum board, and wood trim substrates and new and existing exterior wood substrates.

B. Related Sections
1. Section 06 03 12 – Historic Wood Repair.
2. Section 07 13 27 – Waterproofing and Drainage System
3. Section 08 52 01 – Wood Windows.
4. Section 09 20 00 – Plaster.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
1. ASTM D16: Standard Terminology for Paint, Related Coatings, Materials, and Applications
2. ASTM D3359: Standard Test Methods for Measuring Adhesion by Tape Test
3. ASTM D4214: Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films
4. ASTM D4541: Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
5. ASTM D5064: Standard Practice for Conducting a Patch Test to Assess Coating Compatibility

B. Master Painters Institute (MPI)
1. Architectural Painting Specifications Manual
2. Maintenance Repainting Manual

C. Code of Federal Regulations:
1. 29 CFR 1910.1000-1500, Subpart Z, “Toxic and Hazardous Substances”
2. 29 CFR 1910.134, toxic exposure limits
3. 29 CFR 1910.6200, Lead Exposure in Construction
4. 29 CFR 1926, OSHA Construction Standards
5. 29 CFR 1926.62, OSHA Lead Exposure in Construction; Interim Final Rule
6. 40 CFR Part 59, National Volatile Organic Compound (VOC) Emission Standards for Consumer and Commercial Products
7. 40 CFR Part 61, EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP)
8. 40 CFR Part 261, Identification and Listing of Hazardous Waste.

1.3 DEFINITIONS

A. Exterior Painting: Generally, includes surfaces located in unconditioned spaces open to the

elements.

B. Interior Painting: Generally, includes surfaces located in enclosed spaces.

1.4 SUBMITTALS

A. Qualifications: for Applicator.

B. Product Data: For each type of product. Include preparation requirements and application instructions, VOC content, and manufacturer's technical information.

C. Samples for Verification: For each type of paint system and in each color and gloss level of topcoat.
1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Samples for Color Selection: Provide samples for each type of paint coating to match the existing paint coatings at the wood, plaster, and gypsum board in color and gloss level.

E. Product Data: For cleaners and primers including the following:
1. Alkaline Cleaner/Degreaser
2. Commercial wash for removal of mildew recommended in writing by the coating manufacturer.
3. Knot primer recommended by coating manufacturer for use on wood and plywood.

F. Manufacturer's statement of maximum permissible surface chloride, sulfate, and nitrate (CSN) concentration on substrate prior to coating.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Paint: 1 unopened gallon of each finish coat type and color applied.

1.6 QUALITY ASSURANCE

A. Qualifications:
1. Experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
2. Applicator must have a minimum of 5 years of skilled experience with the application of painting techniques similar to the work of this Project, including decorative stenciling.

B. Application: All coatings shall be applied in strict accordance with the manufacturer's printed instructions. This includes film thickness, curing and recoating times, temperature and humidity, mixing and thinning, pot life, and application methods and techniques.

C. Finish: Coatings shall be visibly free from flow-lines, streaks, blisters, or other surface imperfections in the dry-film state on exposed surfaces.

D. Compatibility: New paint coating systems must be compatible with any previous coatings existing on the substrate. Where appropriate, test compatibility according to ASTM D5064.

E. Mockups: Perform mockup showing the surface preparation and application of each coating system indicated and each color and finish selected to demonstrate aesthetic effects and set quality standards for materials and execution. Located mockups on existing surfaces that represent the range of materials, surface treatments, and coating types.
   1. Surface Preparation Mockup: Surface preparation of new and previously painted substrates. Provide at least 3 square feet of sample for each type of substrate and previous surface treatment.
   2. Coating Application Mockup: Stages sample showing priming, and painting of new and previously painted substrates. Provide at least 3 square feet of sample for each type of substrate and previous surface treatment.
   3. Final approval of color selections will be based on mockups.
      a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
   4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
   5. Texture to match existing finish surface profile. Texture to be visually compared and approved by Architect. Paint finish shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10-foot distance.
   6. Adhesion tests will be completed according to ASTM D3359 on the mockup samples after the coating has cured according to manufacturer's written instruction to assure adequate bonding to the substrate. Mockups shall be continued until bond has been accepted by the Architect. Adhesion testing will continue to be performed during the course of the coating applications.
   7. Do not proceed with Work until mockups have been approved by Architect.
   8. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in the approved manufacturer's original unopened containers and packaging, bearing identification labels.

B. Store tools and materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 degrees F or in compliance with manufacturer's written instructions whichever is more stringent.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.8 SAFETY

A. Apply coatings in strict accordance with all safety conditions required by the manufacturer's product literature, technical bulletins, or as applicable rules and regulations of local, state, and federal authorities having jurisdiction.

B. Contractor to provide OSHA approved personal protective and safety equipment for all employees working on the job site.

C. Contractor to provide adequate ventilation system to keep concentration of volatile material below maximum allowable concentration prescribed by applicable local, state, and federal safety regulations.

D. Contractor to protect personnel from overexposure to toxic materials, conforming to the most stringent guidance from the following:
   1. Manufacturer's MSDS.
   2. Local regulation.
   3. 29 CFR 1910.1000.
   4. OSHA standard in 29 CFR 1910.1025 and 29 CFR 1926.62 for surface preparation on painted surfaces containing lead.

E. Ensure that proper procedures are executed if existing coatings contain hazardous materials prior to execution of work. Have samples tested according to 40 CFR 261, 40 CFR 262, and 40 CFR 263.

1.9 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degrees F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

C. Provide adequate continuous ventilation and sufficient heating before, during and after application or as indicated in manufacturer's product literature or treatment recommendations. Provide method of exhaust to prevent fumes from affecting other areas of work or building occupants. Protect surfaces from dust or other particulate matter generated by work of other trades.

1.10 WARRANTY

A. Manufacturer's Warranty:
   1. Written warranty, signed by coating manufacturer, including:
      a. Materials to replace coating that does not comply with requirements; that fails in adhesion, cohesion, or general durability; that cracks, checks, fades, or chalks; or that deteriorates in a manner not clearly specified by submitted coating manufacturer's data as an inherent quality of the material for the application indicated.
      b. New coating shall closely match color of existing coating. Where localized repair areas are being painted, extend new coating to reveals, surface edges, or other natural termination points to minimize differences in appearance between new and existing coating.
   2. Warranty Period: At two years after Substantial Completion date for all other coatings specified in this Section.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following:
   1. Benjamin Moore & Co. Montvale, NJ, info@benjaminmoore.com, (Benjamin Moore)
   2. PPG Industries, Pittsburgh, Pennsylvania, www.ppgpaints.com, (PPG)
   3. Sherwin Williams, Cleveland, Ohio, www.sherwin-williams.com, (Sherwin Williams)
   4. AknoNobel Paints, www.aknonobel.com, (AkzoNobel)
   5. Behr Process Corporation, Santa Ana, California, www.behr.com (Behr)

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

2.2 COATINGS, GENERAL

A. Material Compatibility:
   1. Provide materials for use within each paint system that are compatible with one another, and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
   2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: Architect
   1. Finish Coats
      a. Custom color to match existing, as approved by the Architect.
   2. Primer
      a. Use differentiated colors as recommended by the coating manufacturer and approved by the Architect for each of the following: primer and finish coats.

C. Gloss:
   1. Finish coat gloss level to match existing, as approved by the Architect.

2.3 COATINGS

A. Subject to compliance with requirements, available manufacturer's products that may be incorporated into the Work include, but are not limited to, the following:

B. Interior Plaster, Gypsum Board, and Wood
   1. Full Primer: For full priming of prepared surfaces of existing coating and all spot-primed areas.
      a. Sherwin Williams
         1) ProMar 200 Zero VOC Interior Acrylic Latex
      b. PPG Industries
         1) Speedhide Interior/Exterior Acrylic Alkali Resistant Primer 6-603
      c. Approved equal
   2. Finish Coat: For all surfaces that have been full primed.
      a. Sherwin Williams
         1) ProMar 200 Zero VOC Interior Acrylic Latex
      b. PPG INDUSTRIES

1) Speedhide Interior Semi-Gloss Acrylic Latex, 6-500 Series
c. Approved equal

C. Exterior
1. Spot Primer: For application to "spot areas" where existing coatings have been partially or fully removed exposing underlying substrate surface.
a. Sherwin Williams
1) Exterior Oil-Based Wood Primer, Y248020, 2.5 to 3.5 mils DFT
b. PPG Industries
1) Seal-Grip WB Acrylic Primer 17-921, 1.6 to 3.0 mils DFT
c. Approved equal
2. Full Primer: For full priming of prepared surfaces of existing coating and all spot-primed areas.
a. Sherwin Williams
1) Pro Industrial Pro-Industrial Acrylic B66-670 Series, 2.5 to 5.0 mils DFT
a) Gloss level to match existing
b. PPG Industries
1) Seal-Grip WB Acrylic Primer 17-921, 1.6 to 3.0 mils DFT
c. Approved equal
3. Finish Coat: For all surfaces that have been full primed.
a. Sherwin Williams
1) Pro Industrial Pro-Industrial Acrylic B66-670 Series, 2.5 to 5.0 mils DFT
a) Gloss level to match existing
b. PPG INDUSTRIES
1) Pitt-tech Plus WB EP 100% Acrylic Latex 90 Series, 2.0 to 4.0 mils DFT
a) Gloss level to match existing
c. Approved equal

D. Water – Repellent Preservation
1. Apply exterior wood sills, aprons, and window shutter boards and other bare and unpainted wood elements.
2. Fungus and mildew resistant penetrating preservative that is resistant to Ultraviolet (UV) light. Provide two coats.

2.4 MATERIALS FOR PREPARATION

A. Alkaline Cleaner/Degreaser, as recommended by the coating manufacturer, or the following:
1. Aerogreen 4130 High-Pressure Cleaner-Degreaser, Manufactured by Aerogreen Solutions LLC, 1285 Brucetown Road Clear Brook, VA 22624, (540) 450-8375, www.aerogreen.us.
2. Purple Power Industrial Strength Cleaner/Degreaser, Model 4320P, manufactured by Aiken Chemical Company, Greenville, South Carolina 29616, (800) 828-1860 http://www.clean-rite.com,
3. Simple Green Pro HD Heavy-Duty Cleaner, Manufactured by Simple Green, Huntington Beach, California
4. Equal, approved by Architect/Engineer

PART 3 EXECUTION

3.1 EXAMINATION

A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
   1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. General: Use the gentlest, appropriate method necessary to clean surfaces in preparation for painting. Clean all surfaces, corners, contours, and interstices.
   1. Detergent Cleaning: Wash surfaces by hand using clean rags, sponges, and bristle brushes. Scrub surface with detergent solution and bristle brush until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used, and that surface remains wet. Rinse with water applied by clean rags or sponges.
   2. Solvent Cleaning: Use solvent cleaning to remove oil, grease, smoke, tar, and asphalt from painted or unpainted surfaces before other preparation work. Wipe surfaces with solvent using clean rags and sponges. If necessary, spot-solvent cleaning may be employed just prior to commencement of paint application, provided enough time is allowed for complete evaporation. Use clean solvent and clean rags for the final wash to ensure that all foreign materials have been removed. Do not use solvents, including primer thinner and turpentine, that leave residue.
   3. Mildew: Clean off existing mildew, algae, moss, plant material, loose paint, grease, dirt, and other debris by scrubbing with bristle brush or sponge and detergent solution. Scrub mildewed areas with mildewcide. Rinse with water applied by clean rags or sponges.

D. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

E. Wood Substrates:
   1. Prime edges, ends, faces, undersides, and backsides of wood.
   2. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler recommended by the coating manufacturer. Sand smooth when dried.

F. Atmospheric Conditions:
   1. Do not apply coating if dew point, relative humidity, or ambient air temperature exceeds limits recommended by the coating manufacturer.
   2. For field work, do not commence work until it has been determined that rainfall is not in the local 24 hour forecast either before, during or following the scheduled coating application.

G. Site Conditions:
   1. Do not apply coating materials to visibly wet or damp surfaces, during rain, or when rain is imminent.
   2. Wood substrates

a. Provide temporary weatherproof covering as necessary to protect wood substrates from precipitation and remain air-dry prior to coating application.
b. Use weatherproof tarps to protect the prepared or newly coated surfaces from unexpected precipitation.

H. Maximum Moisture Content of Substrates:
1. Do not begin application of coatings unless moisture content of exposed surface is below the maximum value recommended in writing by paint manufacturer and not greater than the following maximum values when measured with an electronic moisture meter appropriate for the substrate material:
a. Gypsum Board: 12 percent
b. Gypsum Plaster: 12 percent
c. Portland Cement Plaster: 12 percent
d. Wood: 15 percent

I. Alkalinity: Do not begin application of coatings unless surface alkalinity is within range recommended in writing by paint manufacturer. Conduct alkali testing with litmus paper on exposed plaster, cementitious, and masonry surfaces.

J. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
1. If existing surfaces cannot be prepared to an acceptable condition for proper finishing by using specified surface-preparation methods, notify Architect in writing.

K. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are cured and dry.
1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 SITE PROTECTION

A. Protect existing construction and work in place from damage resulting from operations related to the Work including removals, reinstallation, and the storage, preparation, handling, and application of coating materials.

B. Exercise caution in performing Work so as not to damage other building and site elements. Protect the building and site elements from damage.

C. In areas where coating systems are to be applied, protect surrounding construction from drippage or other effects of coatings.

D. Materials damaged by coating process shall be repaired to the satisfaction of the Architect/Engineer.

E. Protection materials shall be carefully and thoroughly removed upon completion of Work.

F. Damage to adjacent property, buildings, vehicles, site features, etc., caused by coating operations shall result in no additional cost to the Client

G. Protect all holes, seams, and joints of walls, soffits, and roofing from ingress of water or chemical solutions during surface preparation, using heavy plastic masking over the areas not to be prepared and coats, or other similar means.

H. General:
1. Remove items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before proceeding with surface preparation and coating.
2. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
3. Protect the surfaces of components that are not to be prepared and painted.
4. Protect the existing coating systems applied to elements that are not to be prepared and coated. Use suitable rigid materials adequate to tightly cover existing coatings and resist the effects of surface preparation and painting without damage to the existing coatings.

3.3 SURFACE PREPARATION

A. Paint Removal:
1. Hand Tools: Remove loose paint manually using hand-held scrapers, wire brushes, sandpaper, and metallic wool as appropriate for the substrate material. Sand down edges of remaining sound coating to provide smooth and continuous transition between sound coating and areas where the coating was removed.
2. Chemical Paint Remover
   a. Do not use paint removers with methylene chloride
   b. Do not use paint strippers with strong acids such as hydrofluoric or hydrochloric acid.
   c. Do not use water when cleaning or removing coatings from on metal or gypsum-based substrates.
   d. Remove coatings as follows:
      1) Remove loose and peeling paint using scrapers, stiff brushes, or a combination of these. Let surface dry thoroughly.
      2) Apply paint remover to dry, painted surface with brushes or as recommended in writing by manufacturer.
      3) Apply protective sheet covering, if indicated by manufacturer's written instructions.
      4) Allow paint remover to remain on surface for period recommended in writing by manufacturer or as determined by preconstruction testing.
      5) Scrape off paint and remover.
      6) Rinse with hot water applied by low-pressure spray to remove chemicals and paint residue.
      7) Use mechanical methods recommended in writing by manufacturer to remove chemicals and paint residue.
      8) For spots of remaining paint, apply additional applications of paint remover as indicated by manufacturer’s written instructions.

B. Surface Condition: Paint film loose, flaking, or peeling
1. Paint Removal: Remove loose, flaking, or peeling paint film by hand-tool or chemical paint-removal methods.
2. Preparation for Painting: Wash surface by detergent cleaning; use solvent cleaning where needed. Use other cleaning methods for small areas of bare substrate if required. Sand surfaces to smooth remaining paint film edges. Prepare bare cleaned surface to be painted according to paint manufacturer's written instructions for substrate construction materials.

C. Surface Condition: Missing material, small holes and openings, and deteriorated or corroded substrate.
   1. Substrate Preparation: Repair, replace, and treat substrate according to "Substrate Repair" Article.
   2. Preparation for Painting: Sand substrate surfaces to smooth remaining paint film edges and prepare according to paint manufacturer's written instructions for substrate construction materials. Remove rust.
   3. Painting: Paint as outline in this Specification.

D. Prepare surfaces to be painted according to the manufacturer’s written instructions for each substrate and condition.

E. Apply transition coat over incompatible existing coatings.

F. Blending Painted Surfaces: When painting new substrates patched into existing surfaces or touching up missing or damaged finishes, apply coating system specified for the specific substrate. Apply final finish coat over entire surface from edge to edge and corner to corner.

3.4 SUBSTRATE REPAIR

A. General: Repair substrate surface defects that are inconsistent with the surface appearance of adjacent materials and finishes.

B. Wood Substrate
   1. Mild Distress Conditions: no repairs are required for mild distress conditions such as weathering, divots and gouges, chipping, and checking at end grain.
   2. Small Wood Defects: repair wood defects, less than 3/8 inch in diameter, including holes by filling with wood-patching compound and sanding smooth. Reset or remove protruding fasteners.
   3. Deteriorated and Soft Wood: Remove and replace sections of wood trim that are deteriorated or soft when probed with an awl. Minimum length of 12 inches for each dutchman repair with one dutchman per wood member. Where deterioration extends more than 1/3 the length of the wood member or more than one dutchman is required, the wood member should be replaced in kind.
   4. Refer to Section 06 03 12 – Historic Wood Repairs.

C. D. Gypsum-Plaster and Gypsum-Board Substrates:
   1. Rout out surface cracks to remove loose, unsound material; fill with patching compound and sand smooth.
   2. Repair or replace gypsum board and plaster where missing or severely deteriorated. Refer the Section 09 29 00 – Plaster.

3.5 PAINT COATING APPLICATION

A. General
   1. Apply coatings according to manufacturer’s written instructions.
   2. Use applicators and techniques suited for coating and substrate indicated.

3. Verify that ambient air and substrate surface temperatures, relative humidity, and dew point are within ranges recommended by coating manufacturer and are forecast to remain within these ranges during coating curing period.
4. Mix materials in accordance with the coating manufacturer's written directions.
5. Maintain containers used for mixing and applying coating in clean condition, free of foreign materials and residue.
6. Apply materials as soon as practicable after completion of surface preparation or full curing or drying of previous material application.
7. Do not coat over conditions detrimental to formation of durable coating film, including but not limited to dirt, rust, scale, grease, moist surfaces, or scuffed surfaces.

8. Apply transition coat over incompatible existing coatings.
9. Brush-apply spot primer.
10. Apply all other coatings by roller, spray, or brush. Use applicator and technique best suited for substrate and type of material being applied.
    a. Brush Application: Work material into surface in even film. Eliminate cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Neatly draw lines at edges and color breaks.
    b. Roller Application: Keep cover wet; do not dry roll. Apply material in sections. Lay on required amount of material, working material into grooves and rough areas. Then level material, working it into surface.
    c. Spray Application: Use spray application only when permitted by manufacturer's written instructions and authorities having jurisdiction. Apply material to provide equivalent hiding of brush-applied coat. Do not double back, building up film thickness of two coats in one application.

B. Spray-apply field-coatings only in an enclosure capable of retaining all airborne coatings.

C. If undercoats or other conditions show through finish coat, apply additional coats until coating film is of uniform finish, color, and appearance.

D. Ensure that edges, corners, and crevices receive minimum dry film thickness.

E. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, bubbles, or other surface imperfections. Cut in sharp lines and color breaks.
    1. All runs and sags shall be brushed out immediately, and if not, the coating shall be removed and the surface repainted. The wet film may be removed or allowed to dry and removed by sanding after curing.

F. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

G. The dry film thickness will vary on pitted surfaces of existing steel. To achieve the minimum thickness specified, more paint than specified will be required in pitted surfaces.

3.6 WATER REPELLENT PRESERVATION

A. Clean the wood of all dirt and debris with a mild detergent or degreaser or tack cloth.

B. Apply two coats minimum of water repellent preservation per manufacturer's instruction with brush or cloth, allowing each coat to dry before applying additional coats.

C. Protect wood from precipitation and high humidity during the curing process. Allow preservative to cure, refer to manufacturer's instructions, before performing work at adjacent areas.

3.7 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
   1. Contractor shall touch up and restore painted surfaces damaged by testing.
   2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.8 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
   1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
   2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
   3. Allow empty paint cans to dry before disposal.
   4. Collect waste paint by type and deliver to recycling or collection facility.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Contracting Officer, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION