PUBLIC IMPROVEMENTS CONTRACT DOCUMENTS

DES MOINES RIVER SIMON ESTES AMPHITHEATER FLOODWALL IMPROVEMENTS

ACTIVITY ID
082020003

PLAN FILE NO.
614-001/018

CITY COUNCIL APPROVAL

APPROVAL DATE
March 9, 2020

ROLL CALL NO.

CONTRACT NO.

CONTRACTOR

CONTRACT AMOUNT
$.00

ENGINEERING DEPARTMENT

Steven L. Naber, P.E.
Des Moines City Engineer

Funding Information
Object Code
543010
Organization No.
E304PW99
Project No.
SM087
Des Moines River Simon Estes Amphitheater Floodwall Improvements

Activity ID 08-2020-003

The following documents are part of this contract:

Document
Instructions to Bidders
Official Publications
Proposal
Bid Bond
Contract
Performance, Payment and Maintenance Bond
Addenda:

Special Provisions:
Bidding Requirements
Technical Specifications
Supplemental Specifications:
General Supplemental Specifications to SUDAS, 2019 Edition

April 22, 2019

PROJECT ENGINEER: Craig M. Bouska, P.E.
Phone Number: (515) 283-4580
INSTRUCTIONS TO BIDDERS

Activity ID 08-2020-003
Project Name Des Moines River Simon Estes Amphitheater Floodwall Improvements
Fed/St. Project No.

The work comprising the above referenced project shall be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition; and as further modified by the supplemental specifications and special provisions included in the contract documents. The Des Moines City Engineer is the Engineer. The terms used in the contract documents are defined in said SUDAS Standard Specifications. The City of Des Moines is the Contracting Authority on this project and shall hereinafter be referred to as the "Jurisdiction". Before submitting your bid, please review the SUDAS Standard Specifications, in particular, Division 1 - General Provisions and Covenants, including the sections regarding proposal requirements, bonding, contract execution and insurance requirements. Please be certain that all documents have been properly completed and submit them to the City Clerk, 1st Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa, 50309.

I. BID SECURITY

The bid security must be in the minimum amount of 10% of the total bid amount including all add alternates (do not deduct the amount of deduct-alternates). Bid security shall be as defined in Section 26.8 of the Iowa Code and shall be in the form of a cashier's check or certified check drawn on a state-chartered or federally chartered bank, or a certified share draft drawn on a state-chartered or federally chartered credit union, or a bid bond executed by a corporation authorized to contract as a surety in Iowa or satisfactory to the Jurisdiction. The bid bond must be submitted on the enclosed Bid Bond form (DSM Urban 04/20/98) as no other bid bond forms are acceptable. All signatures on the bid bond must be original signatures in ink; facsimile (fax) of any signature on the bid bond is not acceptable. Bid security other than said bid bond shall be made payable to the City of Des Moines. "Miscellaneous Bank Checks", and personal checks, as well as "Money Orders" and "Traveler's Checks" issued by persons, firms or corporations licensed under Chapter 533B of the Iowa Code, are not acceptable bid security. NOTE: If the Bidder submits Bid Security in the form of a Bid Bond, and the Bidder wishes to have their Bid Bond returned to them after an approved contract and bond has been executed or after there is a rejection of all bids (in accordance with Iowa Code 26.10), the Bidder shall include a self-addressed envelope with the Bid Bond.

II. SUBMISSION OF THE PROPOSAL AND IDENTITY OF BIDDER

A. The proposal shall be sealed in an envelope, properly identified as the Proposal with the project title and the name and address of the bidder, and deposited with the Jurisdiction at or before the time and at the place provided in the Notice to Bidders. It is the sole responsibility of the bidder to see that its proposal is delivered to the Jurisdiction prior to the time for opening bids, along with the appropriate bid security sealed in the separate envelope identified as Bid Security and attached to the outside of the bid proposal envelope. Any proposal received after the scheduled time for the receiving of proposals will be returned to the bidder unopened and will not be considered. Bidders must either utilize the two envelopes provided with the Bidding documents, or Bidders provide their own two envelopes, for their proposals and bid security for submission of their bids.

Sales Tax: The bidder should not include sales tax in the bid pursuant to Iowa Code. A sales tax exemption certificate will be available for all material purchased for incorporation in the project.

Accessibility for individuals with disabilities. The City of Des Moines is pleased to provide accommodations to individuals with disabilities or groups and encourages participation in City government. To better serve you, please notify us at least three business days in advance when possible at 515-283-4209, should special accommodations be required.
B. **All pages of the Proposal must be returned.** The following documents shall be completed, signed and returned in the Proposal envelope.

**PROPOSAL - Complete each of the following parts:**

- **Part B** - Acknowledgement of Addenda, if any have been issued;
- **Part C** - Bid Items, Quantities and Prices;
- **Part F** - Additional Requirements; The following proposal attachment documents must be completed and attached:

<table>
<thead>
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<th>ITEM NO.</th>
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<tbody>
<tr>
<td>1.</td>
<td>Reciprocal Resident Bidder and Labor Force</td>
</tr>
<tr>
<td>2.</td>
<td>General</td>
</tr>
</tbody>
</table>

- **Part G** - Identity of Bidder.

The Bidder shall sign the proposal. The signature on the proposal and all proposal attachments must be an original signature in ink signed by the same individual who is the Company Owner or an authorized Officer of the Company; copies or facsimile of any signature will not be accepted. The **Bidder Status Form** (PROPOSAL Part F Item 2B), is required by the Iowa Labor Commissioner, pursuant to Iowa Admin. Code rule 875-156.2(1). The Bidder must complete and submit the **Bidder Status Form**, signed by an authorized representative of the Bidder, with their bid proposal. Under Iowa Admin. Code rule 875-156.2(1), failure to provide the **Bidder Status Form** with the bid may result in the bid being deemed non-responsive and may result in the bid being rejected. The **Worksheet: Authorization to Transact Business** from the Labor Commissioner is included on page 3 of 3 of the Instructions to Bidders, to assist Bidders in completing the **Bidder Status Form**.

C. **Out-of-State Contractors:**

1. Pursuant to Section 91C.7 of the Iowa Code, an out-of-state contractor, before commencing a contract in excess of five thousand dollars in value in Iowa, shall file a bond with the Division of Labor Services of the Iowa Department of Workforce Development. The contractor should contact 515-242-5871 for further information. Prior to contract execution, the City Engineer may forward a copy of this contract to the Iowa Department of Workforce Development as notification of pending construction work. It is the contractor's responsibility to comply with said Section 91C.7 before commencing this work.

2. Prior to entering into contract, the designated low bidder, if it be a corporation organized under the laws of a state other than Iowa, shall file with the Engineer a certificate from the Secretary of the State of Iowa showing that it has complied with all the provisions of Chapter 490 of the Code of Iowa, or as amended, governing foreign corporations. For further information contact the Iowa Secretary of State Office at 515-281-5204.

III. GENERAL

A. **All bid documents must be submitted as printed. No alterations, additions, or deletions are permitted.** If the Bidder notes a requirement in the contract documents that the Bidder believes will require a conditioned or unsolicited alternate bid, the Bidder must immediately notify the Engineer in writing. The Engineer will issue any necessary interpretation by an addendum.

B. Additional information regarding addenda, plan holders, bid tabulations, etc. can be found on the Engineering Department web site at <http://www.dm.gov/Departments/Engineering/Pages/BidsContracts.aspx>.
Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status Form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

Yes___ No___ My business is currently registered as a contractor with the Iowa Division of Labor.

Yes___ No___ My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.

Yes___ No___ My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.

Yes___ No___ My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.

Yes___ No___ My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.

Yes___ No___ My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.

Yes___ No___ My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.

Yes___ No___ My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.

Yes___ No___ My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.

Yes___ No___ My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.

Yes___ No___ My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.
NOTICE TO BIDDERS
CITY OF DES MOINES PUBLIC IMPROVEMENT PROJECT

Time and Place for Filing Sealed Proposals. Sealed bids for the work comprising each improvement as stated below must be filed at or before 11:00 a.m. on February 11, 2020, in the office of the City Clerk, 1st Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa, 50309.

Accessibility for individuals with disabilities. The City of Des Moines is pleased to provide accommodations to individuals with disabilities or groups and encourages participation in City government. To better serve you, please notify us at least three business days in advance when possible at 515-283-4209, should special accommodations be required.

Time and Place Sealed Proposals Will be Opened and Considered. Sealed proposals will be opened and bids tabulated at 11:00 a.m., on February 11, 2020, in the City Council Chambers, 2nd Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa, for consideration by the City Council (Council) at its meeting on March 9, 2020. The City of Des Moines (Jurisdiction) reserves the right to reject any and all bids.

Time for Commencement and Completion of Work. Work on each improvement shall be commenced upon approval of the contract by the Council, and completed as stated below.

Bid Security. Each bidder shall accompany its bid with bid security as defined in Section 26.8 of the Iowa Code and as specified by the Jurisdiction.

Contract Documents. Copies of the contract documents will be available after January 13, 2020, from the City Engineer’s Office, 2nd Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa 50309, at no cost, phone (515) 283-4573.

Preference for Iowa Products and Labor. By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa statutes.

Sales Tax. The bidder should not include sales tax in the bid. A sales tax exemption certificate will be available for all material purchased for incorporation in the project.

General Nature of Public Improvement.
Des Moines River Simon Estes Amphitheater Floodwall Improvements, 08-2020-003
The improvement includes construction of precast and cast-in-place floodwall raises, stoplog closures, Portland Cement Concrete (PCC) sidewalk, erosion control, seeding of disturbed areas, other incidental items and miscellaneous associated work including cleanup; all in accordance with the contract documents, including Plan File Nos. 614-001/018, with improvements located at 75 E. Locust Street in Des Moines, Iowa.

This project shall be fully completed not later than October 9, 2020.

Engineer’s Construction Estimate. $400,000.00

Preletting Conference.
NOTICE OF PUBLIC HEARING
CITY OF DES MOINES PUBLIC IMPROVEMENT PROJECT

Public Hearing on Proposed Contract Documents and Estimated Costs for Improvement. A public hearing will be held by the City Council on the proposed contract documents (plans, specifications and form of contract) on file in the City Engineer’s Office, and estimated cost for each improvement at its meeting on March 9, 2020, at 5:00 p.m., in the City Council Chambers, 2nd Floor, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa. The City Council Meetings are open to all individuals regardless of disability. To better serve you, please notify the City Clerk at least three business days in advance, when possible, should special accommodations be required.

General Nature of Public Improvement

Des Moines River Simon Estes Amphitheater Floodwall Improvements, 08-2020-003
The improvement includes construction of precast and cast-in-place floodwall raises, stoplog closures, Portland Cement Concrete (PCC) sidewalk, erosion control, seeding of disturbed areas, other incidental items and miscellaneous associated work including cleanup; all in accordance with the contract documents, including Plan File Nos. 614-001/018, with improvements located at 75 E. Locust Street in Des Moines, Iowa

Published in the  Des Moines Register
February 19, 2020
PROPOSAL

To the Honorable Mayor and Members of the City Council, City of Des Moines, Iowa

PROPOSAL: PART A - SCOPE

The City of Des Moines, hereinafter called the "Jurisdiction", has need of a qualified contractor to complete the work comprising the below referenced improvement. The undersigned Bidder hereby proposes to complete the work comprising the below referenced improvements or project as specified in the contract documents, which are officially on file with the Jurisdiction, in the Des Moines City Engineer's Office, at the prices hereinafter provided in Part C of this Proposal, for the following described improvements:

Des Moines River Simon Estes Amphitheater Floodwall Improvements, 08-2020-003

The improvement includes construction of precast and cast-in-place floodwall raises, stoplog closures, Portland Cement Concrete (PCC) sidewalk, erosion control, seeding of disturbed areas, other incidental items and miscellaneous associated work including cleanup; all in accordance with the contract documents, including Plan File Nos. 614-001/018, with improvements located at 75 E. Locust Street in Des Moines, Iowa

PROPOSAL: PART B - ACKNOWLEDGEMENT OF ADDENDA

The Bidder hereby acknowledges that all addenda become a part of the contract documents when issued, and that each such addendum has been received and utilized in the preparation of this bid. The Bidder hereby acknowledges receipt of the following addenda by inserting the number of each addendum in the blanks below:

ADDENDUM NUMBER ___________ ADDENDUM NUMBER ___________
ADDENDUM NUMBER ___________ ADDENDUM NUMBER ___________

and certifies that said addenda were utilized in the preparation of this bid.

PROPOSAL: PART C - BID ITEMS, QUANTITIES AND PRICES

UNIT BID PRICE CONTRACTS: The bidder must provide all unit prices, the amount, the total construction cost, any alternate price(s), and the total construction cost plus any add-alternates if there are alternates on the proposal on Proposal Attachment: Part C - Bid Items, Quantities, and Prices. The total construction cost plus any alternates selected by the Jurisdiction shall be used for comparison of bids. The total construction cost plus any add-alternates shall be used for determining the sufficiency of the bid security.
BASE BID CONTRACTS: The bidder must provide any bid price(s), the total base bid price, any alternate price(s), and the total base bid plus any add-alternates if there are alternates on the proposal on Proposal Attachment: Part C - Bid Items, Quantities, and Prices. The total base bid plus any alternates selected by the Jurisdiction shall be used for comparison of bids. The total base bid plus any add-alternates shall be used for determining the sufficiency of the bid security.

PROPOSAL: PART D - GENERAL

The Bidder hereby acknowledges that the Jurisdiction, in advertising for public bids for this project, reserves the right to:

1. Reject any or all bids. Award of the contract, if any, to be to the lowest responsible, responsive bidder; and
2. Reject any or all alternates in determining the items to be included in the contract. Designation of the lowest responsible, responsive bidder to be based on comparison of the total bid plus any selected alternates; and
3. Make such alterations in the contract documents or in the proposal quantities as it determines necessary in accordance with the contract documents after execution of the contract. Such alterations shall not be considered a waiver of any conditions of the contract documents, and shall not invalidate any of the provisions thereof; and

The Bidder hereby agrees to:

1. Enter into a contract, if this proposal is selected, in the form approved by the Jurisdiction and provide the following documents:
   - Proof of registration with the Iowa Division of Labor in accordance with Chapter 91C of the Iowa Code by providing a valid Registration Number,
   - Proof of insurance by a Certificate(s) of Insurance,
   - A performance, maintenance, and payment bond; and
2. Forfeit bid security, not as a penalty but as liquidated damages, upon failure to enter into such contract and/or to furnish said documents and information as requested in Item 1 above acceptable to the Des Moines City Engineer; and
3. Commence the work on this project on or before a date to be specified in a written notice to proceed by the Jurisdiction, and to fully complete the project not later than October 9, 2020; and to pay liquidated damages for noncompliance with said completion provisions at the rate of five hundred and 00/100 dollars ($500.00) for each calendar day thereafter that the work remains incomplete.
PROPOSAL: PART E - NON-COLLUSION AFFIDAVIT

The Bidder hereby certifies:

1. That this proposal is not affected by, contingent on, or dependent on any other proposal submitted for any improvement with the Jurisdiction; and

2. That no individual employed by the Bidder has employed any person to solicit or procure the work on this project, nor will any employee of the Bidder make any payment or agreement for payment of any compensation in connection with the procurement of this project; and

3. That no part of the bid price received by the Bidder was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the bid, other than the payment of their normal compensation to persons regularly employed by the Bidder whose services in connection with the construction of the project were in the regular course of their duties for the Bidder; and

4. That this proposal is genuine and not collusive or sham; that the Bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought, by agreement or collusion, or communication or conference, with any person, to fix the bid price of the Bidder or of any other bidder, and that all statements in this proposal are true; and

5. That the individual(s) executing this proposal have the authority to execute this proposal on behalf of the Bidder.

PROPOSAL: PART F - ADDITIONAL REQUIREMENTS

The Bidder hereby agrees to comply with the additional requirements listed below, which are included in this proposal and identified as proposal attachments:

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</tr>
<tr>
<td>2.</td>
<td>General</td>
</tr>
</tbody>
</table>
PROPOSAL: PART G - IDENTITY OF BIDDER

The Bidder shall indicate whether the bid is submitted by a/an

☐ Individual,
  Sole Proprietorship

☐ Partnership

☐ Corporation

☐ Limited Liability Company

☐ Joint-venture: all parties must join-in and execute all documents

☐ Other

By

Bidder

Signature

Name (Print/Type)

Title

Street Address

City, State, Zip Code

Telephone Number / Email Address

A contract will not be executed until the apparent low Bidder is registered with the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code. The Bidder should contact 515-242-5871 for registration information.

Engineering Department Staff will contact the apparent low Bidder and obtain the name and title of the company's owner, president, CEO, etc. if a different person than entered above.

NOTE: The signature on this proposal must be an original signature in ink; copies or facsimile of any signature will not be accepted.
This is a unit bid price contract. The bidder must provide all unit prices, the amount, the total construction cost, any alternate price(s), and the total construction cost plus any add-alternates if there are alternates on the proposal. The total construction cost plus any alternates selected by the Jurisdiction shall be used for comparison of bids. The total construction cost plus any add-alternates shall be used for determining the sufficiency of the bid security.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>UNITS</th>
<th>QUANTITY</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>* REMOVAL OF SIDEWALK</td>
<td>SY</td>
<td>150.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>2</td>
<td>SHARE USE PATH, PCC, 6' THICK</td>
<td>SY</td>
<td>150.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>3</td>
<td>* TEMPORARY TRAFFIC CONTROL</td>
<td>LS</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>4</td>
<td>* PNEUMATIC SEEDING, FERTILIZING, AND MULCHING, TYPE 1</td>
<td>SQ</td>
<td>20.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>5</td>
<td>* TEMPORARY ROLLED EROSION CONTROL PRODUCT, TYPE 2</td>
<td>SY</td>
<td>225.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>6</td>
<td>* SILT FENCE OR SILT FENCE DITCH CHECK</td>
<td>LF</td>
<td>350.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>7</td>
<td>* SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF SEDIMENT</td>
<td>LF</td>
<td>350.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>8</td>
<td>* SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF DEVICE</td>
<td>LF</td>
<td>350.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>9</td>
<td>* TEMPORARY FENCE, CONSTRUCTION, 5'</td>
<td>LF</td>
<td>600.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>10</td>
<td>* CONSTRUCTION SURVEY</td>
<td>LS</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>11</td>
<td>* MONUMENT PRESERVATION AND REPLACEMENT</td>
<td>LS</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>12</td>
<td>* MOBILIZATION</td>
<td>LS</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>13</td>
<td>* CONCRETE WASHOUT</td>
<td>LS</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>14</td>
<td>PRECAST FLOODWALL RAISE SEGMENT STA. 138+90 to 141+98</td>
<td>LF</td>
<td>600.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>15</td>
<td>AMPITHEATER CLOSURES</td>
<td>LS</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>16</td>
<td>CAST-IN-PLACE FLOODWALL RAISE SEGMENT STA. 141+89 to 141+98</td>
<td>CY</td>
<td>1.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>17</td>
<td>* AMPITHEATER CLOSURES STOPLOGS</td>
<td>EA</td>
<td>5.00</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

*Total Construction Cost: $______

*Item does not have to be included in 4-year maintenance bond but shall be covered by a 1-year maintenance bond.

NOTE: It is understood that the above quantities are estimated for the purpose of this bid. All quantities are subject to revision by the City. Quantity changes which amount to twenty (20) percent or less of the total bid shall not affect the unit bid price of that item.
PROPOSAL ATTACHMENT: PART F - ADDITIONAL REQUIREMENTS
ITEM 1 - RECIPROCAL RESIDENT BIDDER AND LABOR FORCE

Iowa Code section 73A.21 provides for a Reciprocal Resident Bidder and Labor Force preference.

Because of the nature of this project (i.e. Federal-aid participation), the Reciprocal Resident Bidder and Labor Force preference,

☐ shall not apply to this project, and the bidder need not complete the Resident Bidder Information below.

☒ shall apply to this project, and the bidder shall complete the Resident Bidder Information below.

To implement section 73A.21, the Iowa Labor Commissioner adopted chapter 156 of the Iowa Administrative Code, “Bidder Preferences in Government Contracting”. Iowa Admin. Code rule 875-156.2(1) requires each bidder to complete the attached Bidder Status Form. The Bidder must complete and submit the Bidder Status Form, signed by an authorized representative of the bidder, with their bid Proposal. Under Iowa Admin. Code rule 875-156.2(1), failure to provide the statement with the bid may result in the bid being deemed nonresponsive and may result in the bid being rejected.
Bidder Status Form

To be completed by all bidders

Part A

Please answer “Yes” or “No” for each of the following:

Yes____ No____ My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the "Worksheet: Authorization to Transact Business", on page 3 of the "Instructions to Bidders").

Yes____ No____ My company has an office to transact business in Iowa.

Yes____ No____ My company’s office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

Yes____ No____ My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

Yes____ No____ My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered “Yes” for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered “No” to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: ____________________________
City, State, Zip: ____________________________

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: ____________________________
City, State, Zip: ____________________________

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: ____________________________
City, State, Zip: ____________________________

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company’s home state or foreign country offer preferences to bidders who are residents? Yes____ No____

3. If you answered “Yes” to question 2, identify each preference offered by your company’s home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name:

Signature: ____________________________ Date: ____________________________

You must submit the completed form to the governmental body requesting bids per 875 Iowa Administrative Code Chapter 156.

This form has been approved by the Iowa Labor Commissioner.

309-6001 02-14

PROPOSAL ATTACHMENT: PART F: Page 2 of 3 Pages
1. The work under this proposal shall be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition, and as further modified by the supplemental specifications and special provisions included in the contract documents.

Alternate Sales Tax:
Section 1020, 1.08, B, of the Supplemental Specifications shall apply. The bidder should not include sales tax in the bid. A sales tax exemption certificate will be available for all material purchased for incorporation in the project.

2. The Bidder hereby acknowledges that the City of Des Moines in advertising for public bids for this work reserves the right to give a limited notice to proceed of a duration not longer than three months. This limited notice to proceed shall be given where all necessary right-of-way has not yet been acquired. The limited notice to proceed will allow construction to proceed as far as possible and practical on the right-of-way, which has been acquired.

3. The Bidder hereby acknowledged and agrees:
   • To comply with the Equal Employment Opportunity Program included in the City of Des Moines Contract Compliance Program, which is available at the following website <http://www.dm.gov/Departments/Engineering/PDF/Contract%20Compliance%20Program%20(June%202017).pdf>
     or from the City Engineer’s Office.
   • To comply with any and all applicable provisions of the Des Moines Human Rights Ordinance, Chapter 62, of the Des Moines Municipal Code.
   • Not to discriminate against any employees, or applicants for employment, on the basis of age, race, religion, creed, color, sex, sexual orientation, national origin, ancestry, disability, familial status or gender identity.

4. The City’s Overall Annual DBE/TSB Goal for calendar year 2020 is 5.94%, which represents a target that the City would like to achieve in including DBE/TSB participation on City contracts; and is not a mandatory goal for this project. The Certified Directory of DBEs is available at the following website <https://secure.iowadot.gov,DBE/Directory/Index/>. The Certified Directory of TSBs is available at the following website <https://iowaeda.dynamics365portals.us/tsb-search/>
BID BOND

KNOW ALL BY THESE PRESENTS:

That we, ____________________________________________________________, as Principal, and ____________________________________________________________, as Surety, are held and firmly bound unto the City of Des Moines, as Obligee (hereinafter the "Jurisdiction"), in the penal sum of __________________________ dollars

($____________________) lawful money of the United States, for which payment the Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The Principal has submitted to the Jurisdiction a proposal to enter into a contract in writing, for the following described improvements:

Des Moines River Simon Estes Amphitheater Floodwall Improvements, 08-2020-003
The improvement includes construction of precast and cast-in-place floodwall raises, stoplog closures, Portland Cement Concrete (PCC) sidewalk, erosion control, seeding of disturbed areas, other incidental items and miscellaneous associated work including cleanup; all in accordance with the contract documents, including Plan File Nos. 614-001/018, with improvements located at 75 E. Locust Street in Des Moines, Iowa

The Surety hereby stipulates and agrees that the obligations of the Surety and its Bond will be in no way impaired or affected by any extension of the time within which the Jurisdiction may accept the Bid or execute a Contract; and the Surety does hereby waive notice of any such extension.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue will be Polk County, State of Iowa. If legal action is required by the Jurisdiction against the Surety or Principal to enforce the provisions of this bond or to collect the monetary obligation accruing to the benefit of the Jurisdiction, the Surety or Principal agrees to pay the Jurisdiction all outlay and expense incurred by the Jurisdiction in enforcing any of the provisions of this Bond. All rights, powers, and remedies of the Jurisdiction are cumulative and not alternative and are in addition to all rights, powers and remedies given to the Jurisdiction by law. The Jurisdiction may proceed against the Surety for any amount guaranteed hereunder whether action is brought against Principal or whether or not the Principal is joined in the action. As used herein, the phrase “all outlay and expense” is not to be limited in any way, but includes the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits and overhead where applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee expense, outside experts, attorneys fees (including overhead expenses of the Jurisdiction's staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction.
If the proposal by the Principal is accepted and the Principal enters into a contract with the Jurisdiction in accordance with the terms of the proposal, including the provision of insurance and bond as specified in the contract documents with good and sufficient surety for the faithful performance of the contract, for the prompt payment of labor and material furnished in the prosecution of the work, and for the maintenance of the improvements as may be required in the contract documents or, in the event the Principal does not enter into a contract and provide the required insurance and bonds, the Principal pays the penal sum to the Jurisdiction, then this obligation will become null and void; otherwise, the Surety shall pay to the Jurisdiction the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this __________ day of _________________________, 20______

SURETY:

_____________________________
Surety Company

By ___________________________
Signature Attorney-in-Fact/Officer

_____________________________
Name of Attorney-in-Fact/Officer

_____________________________
Company Name

_____________________________
Company Address

_____________________________
City, State  Zip Code

_____________________________
Company Telephone Number

PRINCIPAL:

_____________________________
Bidder

By ___________________________
Signature

_____________________________
Name

_____________________________
Title

_____________________________
Address

_____________________________
City, State  Zip Code

_____________________________
Telephone Number

NOTE:

1. All signatures on this bid bond must be original signatures in ink; copies or facsimile of any signature will not be accepted.

2. This bond must be sealed with the Surety's raised, embossed seal.

3. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety's raised, embossing seal, or security watermark.

4. The name and signature of the Surety's Attorney-in-Fact/Officer entered on this bond must be exactly as listed on the Certificate or Power of Attorney accompanying this bond.
CONTRACT

THIS CONTRACT, made and entered into at Des Moines, Iowa, on _______________, by and between the City of Des Moines, by its Mayor, upon order of its City Council, hereinafter the "Jurisdiction", and ________________________________, hereinafter the "Contractor".

WITNESSETH:

The Contractor hereby agrees to complete the work comprising the below referenced improvement as specified in the contract documents, which are officially on file with the Jurisdiction, in the Des Moines City Engineer's Office. This contract includes all contract documents. The work under this contract shall be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition; and as further modified by the supplemental specifications and special provisions included in said contract documents, and the Contract Attachments attached hereto. The Des Moines City Engineer is the Engineer. The Contractor further agrees to complete the work in strict accordance with said contract documents, and to guarantee the work as required by law, for the time required in said contract documents, after its acceptance by the Jurisdiction.

This contract is awarded and executed for completion of the work specified in the contract documents for the bid prices shown on the Contract Attachment: Item 2: Bid Items, Quantities and Prices which were proposed by the Contractor in its proposal submitted in accordance with the Notice to Bidders for the following described improvements:

Des Moines River Simon Estes Amphitheater Floodwall Improvements, 08-2020-003
The improvement includes construction of precast and cast-in-place floodwall raises, stoplog closures, Portland Cement Concrete (PCC) sidewalk, erosion control, seeding of disturbed areas, other incidental items and miscellaneous associated work including cleanup; all in accordance with the contract documents, including Plan File Nos. 614-001/018, with improvements located at 75 E. Locust Street in Des Moines, Iowa

The Contractor agrees to perform said work for and in consideration of the Jurisdiction's payment of the bid amount of _______________ dollars ($________________) which amount shall constitute the required amount of the performance, payment, and maintenance bond. The Contractor hereby agrees to commence work under this contract on or before a date to be specified in a written notice to proceed by the Jurisdiction and to fully complete the project not later than October 9, 2020; and to pay liquidated damages for noncompliance with said completion provisions in the amount of five hundred and 00/100 dollars ($500.00), for each calendar day thereafter that the work remains incomplete.
IN WITNESS WHEREOF, the Parties hereto have executed this instrument, in triplicate on the date first shown written.

<table>
<thead>
<tr>
<th>JURISDICTION:</th>
<th>CONTRACTOR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>By</td>
<td></td>
</tr>
<tr>
<td>T. M. Franklin Cownie, Mayor</td>
<td>Contractor</td>
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<tr>
<td>(Seal)</td>
<td></td>
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<tr>
<td>ATTEST:</td>
<td></td>
</tr>
<tr>
<td>P. Kay Cmeli, City Clerk</td>
<td></td>
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<tr>
<td>FORM APPROVED BY:</td>
<td></td>
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<tr>
<td>Kathleen Vanderpool, Deputy City Attorney</td>
<td>Signature</td>
</tr>
</tbody>
</table>

**CONTRACTOR PUBLIC REGISTRATION INFORMATION To Be Provided By:**

1. **All Contractors:** The Contractor's Public Registration Number, issued by the Iowa Commissioner of Labor pursuant to Section 91C.5 of the Iowa Code, is as follows: Number

2. **Out-of-State Contractors:**

   A. Pursuant to Section 91C.7 of the Iowa Code, an out-of-state contractor, before commencing a contract in excess of five thousand dollars in value in Iowa, shall file a bond with the division of labor services of the department of workforce development. The contractor should contact 515-242-5871 for further information. Prior to contract execution, the City Engineer may forward a copy of this contract to the Iowa Department of Workforce Development as notification of pending construction work. It is the contractor's responsibility to comply with said Section 91C.7 before commencing this work.

   B. Prior to entering into contract, the designated low bidder, if it be a corporation organized under the laws of a state other than Iowa, shall file with the Engineer a certificate from the Secretary of the State of Iowa showing that it has complied with all the provisions of Chapter 490 of the Code of Iowa, or as amended, governing foreign corporations. For further information contact the Iowa Secretary of State Office at 515-281-5204.

**NOTE:** All signatures on this contract must be original signatures in ink: copies or facsimile of any signature will not be accepted.
CORPORATE ACKNOWLEDGEMENT

State of __________________________  )
_________________________ County  ) SS

On this ___________ day of ____________, 20 __________, before me, the undersigned, a Notary Public in and for the State of ____________, personally appeared _______________ and _______________ to me known, who, being by me duly sworn, did say that they are the _______________ and _______________ respectively, of the corporation executing the foregoing instrument; that (no seal has been procured by) (the seal affixed thereto is the seal of) the corporation; that said instrument was signed (and sealed) on behalf of the corporation by authority of this Board of Directors; that _______________ and _______________ acknowledged the execution of the instrument to be the voluntary act and deed of the corporation, by it and by them voluntarily executed.

____________________________________
Notary Public in and for the State of __________________________

My commission expires ____________________________
1. The Contractor acknowledges and agrees:
   • To comply with the Equal Employment Opportunity Program included in the City of Des Moines Contract Compliance Program, which is available at the following website <http://www.dm.gov/Departments/Engineering/PDF/Contract%20Compliance%20Program%20(June%202017).pdf> or from the City Engineer’s Office.
   • To comply with any and all applicable provisions of the Des Moines Human Rights Ordinance, Chapter 62, of the Des Moines Municipal Code.
   • Not to discriminate against any employees, or applicants for employment, on the basis of age, race, religion, creed, color, sex, sexual orientation, national origin, ancestry, disability, familial status or gender identity.
   • To include this provision in all subcontracts for this project.

2. The Contractor agrees to comply with the requirements of the City of Des Moines Contract Compliance Program as referenced in the proposal. Final acceptance of the project will not be made until the Contractor has submitted to the City Engineer a notarized summary of payments to and scope of work by all DBE/TSB subcontractors.

3. The City of Des Moines Master Construction Safety Packet (Safety Plan) is available at <http://www.dm.gov/Departments/Engineering/PDF/MasterConstructionSafetyPacket.pdf> and is also available upon request from the Engineering Department. The Engineering Department will make available a copy of the City of Des Moines Safety Plan to the Contractor when the contract is awarded. The Contractor understands and agrees that said Safety Plan is for the Contractor’s information only and that it is the Contractor’s sole responsibility to provide, or make available, this safety information to all its Subcontractors.

4. The Contractor understands and agrees that the construction of the work included in this contract is by its nature dangerous work. The Contractor agrees:
   • That the Contractor should have a safety program; however, the Contractor need not submit a safety program to the City of Des Moines, and City of Des Moines staff will not review or approve the Contractor’s safety program. The City of Des Moines assumes that the Contractor will maintain a safe worksite; however, City of Des Moines staff will not intrude in the Contractor’s responsibility for safety issues.
   • That until the work is accepted by the Jurisdiction; the work shall be in the custody of and under the charge, care, and control of the Contractor.
   • That the Contractor is responsible for the project area or work site.
   • That the Contractor is solely responsible for the safety of everyone on its work site.
   • That it is the Contractor’s sole responsibility to provide as safe a working site as possible given the nature of the work.
   • That it is the Contractor’s responsibility to notify and advise its employees, subcontractors, suppliers, and everyone on the worksite of the dangers associated with the work, and provide them with appropriate safety information to protect them from those dangers.
5. The Contractor acknowledges and agrees that no contract shall be binding upon the City of Des Moines until said contract has been executed by the Bidder, and shall have been approved by the City Council and executed by the Mayor and attested to by the City Clerk.

6. The Contractor agrees that sixty (60) days shall constitute a reasonable time within which it shall be required to make progress payments or final payment to subcontractors after each subcontractor's satisfactory performance of its work, all as required by Section 573.12 2.b.(2) of the Code of Iowa.
This contract is awarded and executed for completion of the work specified in the contract documents for the bid price tabulated below as proposed by the contractor in its proposal submitted in accordance with notice to bidders and notice of public hearing. All quantities are subject to revision by the Jurisdiction. Quantity changes which amount to twenty (20) percent or less of the amount bid shall not affect the unit bid price of that item.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>ESTIMATED UNITS</th>
<th>QUANTITY</th>
<th>UNIT PRICE</th>
<th>AMOUNT</th>
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<tbody>
<tr>
<td>1</td>
<td>* REMOVAL OF SIDEWALK</td>
<td>SY</td>
<td>150.00</td>
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<tr>
<td>2</td>
<td>SHARED USE PATH, PCC, 6&quot; THICK</td>
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<td>150.00</td>
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<td>3</td>
<td>* TEMPORARY TRAFFIC CONTROL</td>
<td>LS</td>
<td>1.00</td>
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<td>4</td>
<td>* PNEUMATIC SEEDING, FERTILIZING, AND MOULCHING, TYPE 1</td>
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<td>5</td>
<td>* TEMPORARY ROLLED EROSION CONTROL PRODUCT, TYPE 2</td>
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<td>225.00</td>
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<td>6</td>
<td>* SILT FENCE OR SILT FENCE DITCH CHECK</td>
<td>LF</td>
<td>350.00</td>
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<td>7</td>
<td>* SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OR SEVEMENT</td>
<td>LF</td>
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<td>8</td>
<td>* SILT FENCE OR SILT FENCE DITCH CHECK, REMOVAL OF DEVICE</td>
<td>LF</td>
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<td>9</td>
<td>* TEMPORARY FENCE CONSTRUCTION, 5'</td>
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<td>10</td>
<td>* CONSTRUCTION SURVEY</td>
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<td>11</td>
<td>* MONUMENT PRESERVATION AND REPLACEMENT</td>
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<td>12</td>
<td>* MOBILIZATION</td>
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<td>13</td>
<td>* CONCRETE WASHOUT</td>
<td>LS</td>
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<td>14</td>
<td>PRECAST FLOODWALL RAISE SEGMENT STA. 138+90 to 141+98</td>
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<tr>
<td>15</td>
<td>AMPITHEATER CLOSURES</td>
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<tr>
<td>16</td>
<td>CAST-IN-PLACE FLOODWALL RAISE SEGMENT STA. 141+89 to 141+98</td>
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<tr>
<td>17</td>
<td>AMPITHEATER CLOSURES STOPLOGS</td>
<td>EA</td>
<td>5.00</td>
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<td></td>
</tr>
</tbody>
</table>

TOTAL CONSTRUCTION COST

*Item does not have to be included in 4-year maintenance bond but shall be covered by a 1-year maintenance bond.

NOTE: It is understood that the above quantities are estimated for the purpose of this bid. All quantities are subject to revision by the City. Quantity changes which amount to twenty (20) percent or less of the total bid shall not affect the unit bid price of that item.
PERFORMANCE, PAYMENT & MAINTENANCE BOND

KNOW ALL BY THESE PRESENTS:

That we, ________________________________________, as Principal (the "Contractor" or "Principal"), and ________________________________________, as Surety, are held and firmly bound unto the City of Des Moines, as Obligee (the "Jurisdiction"), and to all persons who may be injured by any breach of any of the conditions of this Bond

in the penal sum of ______________________________________ dollars ($_____________________), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, legal representatives and assigns, jointly and severally, firmly by these presents.

The conditions of the above obligations are such that whereas the Contractor entered into a contract with the Jurisdiction, bearing the date of ________________________, (the "Contract") wherein the Contractor undertakes and agrees to construct the following described improvements:

Des Moines River Simon Estes Amphitheater Floodwall Improvements, 08-2020-003

The improvement includes construction of precast and cast-in-place floodwall raises, stoplog closures, Portland Cement Concrete (PCC) sidewalk, erosion control, seeding of disturbed areas, other incidental items and miscellaneous associated work including cleanup; all in accordance with the contract documents, including Plan File Nos. 614-001/018, with improvements located at 75 E. Locust Street in Des Moines, Iowa

and to faithfully perform all the terms and requirements of the Contract within the time specified, in a good and workmanlike manner, and in accordance with the Contract Documents. Provided however, that one year after the date of acceptance by the Jurisdiction as complete, of the work under the above referenced Contract, the maintenance portion of this Bond shall continue in force but the penal sum for maintenance shall be reduced to ______________________________________ dollars ($_____________________), which is the cost associated with those items shown on the Proposal and in the Contract which require a maintenance bond period in excess of one year.

It is expressly understood and agreed by the Contractor and Surety that the following provisions are a part of this Bond and are binding upon the Contractor and Surety, to-wit:

1. PERFORMANCE: The Contractor shall well and faithfully observe, perform, fulfill and abide by each and every covenant, condition and part of the Contract and Contract Documents, by reference made a part hereof, and shall indemnify and save harmless the Jurisdiction from all outlay and expense incurred by the Jurisdiction by reason of the Contractor's default or failure to perform as required. The Contractor shall also be responsible for the default or failure to perform as required under the Contract and Contract Documents by all its subcontractors, suppliers, agents, or employees furnishing materials or providing labor in the performance of the Contract.
2. PAYMENT: The Contractor and Surety on this bond hereby agree to pay all just claims submitted by persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the performance of the Contract, including but not limited to claims for all amounts due for labor, materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used by the Contractor or any subcontractor, wherein the same are not satisfied out of the portion of the contract price which the Jurisdiction is required to retain until completion of the improvement, but the Contractor and Surety shall not be liable unless the claims have been established as provided by law. The Contractor and Surety hereby bind themselves to the obligations and conditions set forth in Iowa Code Chapter 573.

3. MAINTENANCE: The Contractor and the Surety shall, at their own expense:
   A. Remedy any and all defects that may develop in or result from work to be performed under the Contract within the period of four (4) year(s) from the date of acceptance of the work under the Contract, by reason of defects in workmanship or materials used in construction of the work;
   B. Keep all work in continuous good repair; and
   C. Pay the Jurisdiction's reasonable costs of monitoring and inspecting to assure that any defects are remedied, and to repay the Jurisdiction all outlay and expense incurred as a result of Contractor's and Surety's failure to remedy any defect as required by this section.

Contractor's and Surety's obligation extends to defects in workmanship or materials not discovered or known to the Jurisdiction at the time the work was accepted.

4. GENERAL: Every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:
   A. To consent without notice to any extension of time to the Contractor in which to perform the Contract;
   B. To consent without notice to any change in the Contract or Contract Documents, that increases the total contract price and the penal sum of this bond, provided that all such changes do not, in the aggregate, involve an increase of more than twenty percent of the total contract price, and that this Bond shall then be released as to such excess increase; and
   C. To consent without notice that this Bond shall remain in full force and effect until the contract is completed, whether completed within the specified contract period, within an extension thereof, or within a period of time after the contract period has elapsed and liquidated damages are being charged against the Contractor.

The Contractor and every Surety on this Bond shall be deemed and held bound, any contract to the contrary notwithstanding, to the following provisions:
   A. That no provision of this Bond or of any other contract shall be valid which limits to less than five years after the acceptance of the work under the Contract the right to sue on this Bond.
B. That as used herein, the phrase "all outlay and expense" is not to be limited in any way, but shall include the actual and reasonable costs and expenses incurred by the Jurisdiction including interest, benefits and overhead as applicable. Accordingly, "all outlay and expense" would include but not be limited to all contract or employee expense, all equipment usage or rental, materials, testing, outside experts, attorneys fees (including overhead expenses of the Jurisdiction's staff attorneys), and all costs and expenses of litigation as they are incurred by the Jurisdiction. It is intended the Contractor and Surety will defend and indemnify the Jurisdiction on all claims made against the Jurisdiction on account of Contractor's failure to perform as required in the Contract and Contract Documents, that all agreements and promises set forth in the Contract and Contract Documents, in approved change orders, and in this Bond will be fulfilled, and that the Jurisdiction will be fully indemnified so that it will be put into the position it would have been in had the Contract been performed in the first instance as required.

C. In the event the Jurisdiction incurs any "outlay and expense" in defending itself with respect to any claim as to which the Contractor or Surety should have provided the defense, or in the enforcement of the promises given by the Contractor in the Contract, Contract Documents, or approved change orders, or in the enforcement of the promises given by the Contractor and Surety in this Bond, the Contractor and Surety agree that they will make the Jurisdiction whole for all such outlay and expense, provided that the Surety's obligation under this Bond shall not exceed 125% of the penal sum of this Bond.

In the event that any actions or proceedings are initiated with respect to this Bond, the parties agree that the venue thereof shall be Polk County, State of Iowa. If legal action is required by the Jurisdiction to enforce the provisions of this Bond or to collect the monetary obligation accruing to the benefit of the Jurisdiction, the Contractor and Surety agree, jointly and severally, to pay the Jurisdiction all outlay and expense incurred by the Jurisdiction. All rights, powers, and remedies of the Jurisdiction hereunder shall be cumulative and not alternative and shall be in addition to all rights, powers and remedies given to the Jurisdiction, by law. The Jurisdiction may proceed against the Surety for any amount guaranteed hereunder whether action is brought against the Contractor or whether or not the Contractor is joined in the action.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall faithfully perform all of the promises of the Principal, as set forth and provided in the Contract, in the Contract Documents, and in this Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

When a word, term, or phrase is used in this Bond, it shall be interpreted or construed first as defined in this Bond, the Contract, or the Contract Documents; second, if not defined in the Bond, Contract, or Contract Documents, it shall be interpreted or construed as defined in applicable provisions of the Iowa Code; third, if not defined in the Iowa Code, it shall be interpreted or construed according to its generally accepted meaning in the construction industry; and fourth, if it has no generally accepted meaning in the construction industry, it shall be interpreted or construed according to its common or customary usage.
Failure to specify or particularize shall not exclude terms or provisions not mentioned and shall not limit liability hereunder. The Contract and Contract Documents are hereby made a part of this Bond.

Witness our hands, in triplicate, this __________ day of ______________________ , 20 __________

<table>
<thead>
<tr>
<th>PRINCIPAL:</th>
<th>SURETY:</th>
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<tbody>
<tr>
<td></td>
<td>Surety Company</td>
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<td>By</td>
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<td></td>
<td>Signature Attorney-in-Fact/Officer</td>
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<td></td>
<td>Name of Attorney-in-Fact/Officer</td>
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<td></td>
<td>Company Name</td>
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<td>Company Address</td>
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<td></td>
<td>City, State Zip Code</td>
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<tr>
<td></td>
<td>Company Telephone Number</td>
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<tr>
<td>Contractor</td>
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<tr>
<td>By</td>
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<tr>
<td>Signature</td>
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<tr>
<td>Title</td>
<td></td>
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</tbody>
</table>

FORM APPROVED BY:

Kathleen Vanderpool
Deputy City Attorney

NOTE:

1. All signatures on this performance, payment & maintenance bond must be original signatures in ink; copies or facsimile of any signature will not be accepted.

2. This bond must be sealed with the Surety’s raised, embossed seal.

3. The Certificate or Power of Attorney accompanying this bond must be valid on its face and sealed with the Surety’s raised, embossing seal.

4. The name and signature of the Surety’s Attorney-in-Fact/Officer entered on this bond must be exactly as listed on the Certificate or Power of Attorney accompanying this bond.

5. This bond form must be utilized as printed; no additions/deletions/alterations are permitted, other than providing the required information.
SPECIAL PROVISION
BIDDING REQUIREMENTS
ON
DES MOINES RIVER SIMON ESTES AMPHITHEATER FLOODWALL
IMPROVEMENTS
ACTIVITY ID 08-2020-003

1) AWARD OF CONTRACT

The apparent low Bidder on this project will be required to furnish executed contract; Performance, Payment, and Maintenance Bond; Certificate of Insurance; and NPDES Certification Statements, if required, in substantial compliance with the contract documents to the Engineering Department before 12:00 noon on Friday, March 6, 2020. Completed documents in accordance with the contract documents and acceptable to the City of Des Moines Engineering and Legal Departments will be presented to the City Council for award of this contract on Monday, March 9, 2020. This would allow construction to begin upon issuance of the Notice to Proceed by the City Engineer.

By submission of a bid, the Bidder agrees that if the Bidder fails to furnish said executed contract; Performance, Payment, and Maintenance Bond; Certificate of Insurance; and NPDES Certification Statements, if required, in substantial compliance with the contract documents to the Engineering Department before 12:00 noon on Friday, March 6, 2020; the amount of the Bidder's bid security may become the property of the City and may be retained--not as a penalty but as liquidated damages. The award of the contract may then, at the discretion of the City, be made to the next-lowest responsible Bidder, or the work may be re-advertised or may be constructed by the City in any legal manner. Notice to Proceed will not be issued until the Contractor's insurance is in compliance with the specifications.

The Bidder is reminded that all subcontractors must be approved by the City Council. The Council policy is that subcontractors be approved at the time the contract is awarded, if possible. The Bidder should submit a letter requesting approval of any subcontractors along with the subcontractor's NPDES Certification Statement, if required, at the time its executed contracts are submitted for approval.

2) CONTRACT COMPLIANCE PROGRAM


a. EEO Program – Complaints of discrimination in violation of the Des Moines Human Rights Ordinance, or corresponding state or federal law, should still be filed with the appropriate city, state, or federal agency. If a Contractor is found by one of these agencies to be engaging in illegal discrimination, the Contractor will be in breach of its contract with the City of Des Moines and appropriate action will be taken.

b. DBE/TSB Program: Certification – The City of Des Moines' program is a DBE/TSB Program whereby both certified DBEs and certified TSBs are equally eligible under the program. All DBEs shall be certified by the Iowa Department of Transportation (IDOT), and the Certified Directory of DBEs is available at the following website [https://secure.iowadot.gov/DBE/Directory/Index/](https://secure.iowadot.gov/DBE/Directory/Index/).
All TSBs shall be certified by the Iowa Department of Inspections and Appeals, and the Certified Directory of TSBs is available at the following website https://dia.iowa.gov/tsb/index.php/search. The TSB website allows the user to search by name or other keyword. If the user enters the keyword "CONST" in the space next to Service Description and clicks SEARCH, the database will provide a listing of all TSBs that have identified various forms of construction as their type of work. The Directories will not be printed in the contract documents. Copies of the DBE and TSB Directories are available from the Engineering Department upon request.

c. DBE/TSB Program: Annual and Contract Goals – The City’s overall annual DBE/TSB goal will be based on the IDOT DBE overall annual goal established for the corresponding federal fiscal year as further adjusted and established by the Engineering Department to consider such factors as the current capacity of DBEs/TSBs to perform work, differences in the DBE versus TSB market, etc. By utilizing the IDOT overall annual DBE goal as the City’s overall annual DBE/TSB goal, the goal will be independently reviewed annually and updated regarding the availability of the DBEs that are ready, willing, and able to perform work. Many DBEs are also certified as TSBs and the availability is similar. The City’s overall annual DBE/TSB goal represents a target that the City would like to achieve by including DBE/TSB participation on City contracts; and is not a mandatory goal for this project. The Bidder is encouraged to use its best efforts to meet, and if possible exceed, the City’s overall annual DBE/TSB goal.

3) ALTERNATE SALES AND USE TAX

Section 1020, 1.08, B, of the General Supplemental Specifications shall apply to this contract. The Bidder should not include sales tax in the bid pursuant to Iowa Code. A sales tax exemption certificate will be available for all material purchased for incorporation in the project. Complete information on qualifying materials and supplies can be found at www.state.ia.us/tax, the Iowa Department of Revenue and Finance’s (IDRF) web site. Links are found in the Business Taxes and Local Government categories. Contact the IDRF at idrf@idrf.state.ia.us if you have questions on this requirement.
TECHNICAL SPECIFICATIONS

DES MOINES RIVER SIMON ESTES AMPHITHEATER
FLOODWALL IMPROVEMENTS

Technical Specification:

Simon Estes Amphitheater Floodwall Improvements
Des Moines River
Simon Estes Amphitheater
Floodwall Improvements
Special Provisions to the SUDAS
Standard Specifications, 2019 Edition

December 20, 2019

Prepared for:
City of Des Moines

Prepared by:
Stantec Consulting Services Inc.
This project will be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition, as amended by:

1. The City of Des Moines General Supplemental Specifications (effective April 22, 2019)
2. The Special Provisions to SUDAS Standards Specifications 2019, which includes amendments to the following sections to support construction of the referenced project:
   a. Section 1050 – Control of Work
   b. Section 1070 – Legal Relations and Responsibilities to the Public
   c. Section 2010 – Earthwork, Subgrade, and Subbase
   d. Section 8010 – Traffic Control
   e. Section 8030 – Temporary Traffic Control
3. Supplemental Technical Specifications, which include the following additional specifications to support construction of the referenced project:
   a. City of Des Moines Supplemental Specification for Tree Protection, Effective date March 24, 2017
   b. 01 36 00 – Emergency Action Plan
   c. 03 10 00 – Concrete Formwork
   d. 03 20 00 – Concrete Reinforcement
   e. 03 30 00 – Cast-in-Place Concrete
   f. 03 45 00 – Precast Concrete
   g. 03 60 00 – Grouting
   h. 35 20 14 – Stoplog Closure

All provisions which are not so amended or supplemented remain in full force and effect.

Said SUDAS Standard Specifications are hereby amended as follows.

SECTION 1050 – Control of Work

1050, 1.16 Photographic Documentation: Add subsection 1.16 Photographic Documentation as follows:

1.16 Photographic Documentation

A. Construction Photographs: Submit two prints of each photographic view within seven days of taking photographs. Digital Images: Submit a complete set of digital image electronic on CD-ROM. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, uncropped.

B. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.
C. Digital Images: Provide images in uncompressed TIFF format, produced by a digital camera with minimum sensor size of 7.0 megapixels, and at an image resolution of not less than 1024 by 768 pixels.

D. Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted. Maintain key plan with each set of construction photographs that identifies each photographic location and direction/orientation of the view taken.

   a. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

      i. Date and Time: Include date and time in filename for each image.
      ii. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference.

   b. Preconstruction Photographs: Before starting construction, take color, digital photographs of Project site throughout the limits of construction, including existing items to remain during construction and those designated as being demolished, relocated and retrofitted, from different vantage points.

      i. Take photographs to show existing conditions adjacent to limits of construction before starting the Work.

      ii. Take photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.

      iii. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

   c. Periodic Construction Photographs: Take color, digital photographs at a minimum monthly. Select vantage points to show status of construction and progress since last photographs were taken.

   d. Final Completion Construction Photographs: Take color, digital photographs from the same locations as the Preconstruction Photographs after date of Substantial Completion for submission as Project Record Documents. Include date stamp.

SECTION 1070 – Legal Relations and Responsibilities to the Public

1070, 2.03 Work Area: Add subsection C. as follows:

The Contractor shall remove any temporary fill material from the project site after completion of the work.

SECTION 2010 – EARTHWORK, SUBGRADE, AND SUBBASE
2010, 1.03 SUBMITTALS: Add the following subsections as follows:

A. Contractor will be required to submit a plan for deep excavations prepared and sealed by Professional Engineer licensed in Iowa.

2010, Part 3: Add the following section

3.10 GRADING TOLERANCES
A. Grading tolerances for levee grading:
   1. Vertical: 0.0 feet to +0.2 feet
   2. Horizontal: +/- 0.5 feet
B. Grading tolerance for non-levee areas:
   1. Vertical: +/- 0.1 feet
   2. Horizontal: +/- 0.1 feet

SECTION 8010 – TRAFFIC CONTROL

8010, 2.05 Poles, Heads, and Signs: Add Subparagraph G. as follows:

G. Levee Signage
   1. This work shall consist of all materials and labor necessary to provide, fabricate, and install roadway signs at the locations shown in the Drawings.
   2. References:

SECTION 8030 – TEMPORARY TRAFFIC CONTROL

8030, 1.03 SUBMITTALS: Add Subparagraph C. as follows:

C. Perform condition surveys of haul roads prior to use and document with necessary photographs and written descriptions.

8030, 3.02 MAINTENANCE: Add Subparagraphs C. as follows:

C. Perform condition surveys of haul roads prior to use and document with necessary photographs and written descriptions.
D. Keep roads reasonably free from dirt, dust, mud and other debris from construction operations.

E. Clean and maintain haul roads daily to maintain acceptable public access on the route.

F. Repair any damaged haul roads to match existing conditions before use.

G. Levee crowns and berms used as haul roads should be restored to original condition at the completion of all work. All such surfaces should be left in a reasonably smooth condition.

1. Any damage or deformation of the levee resulting from construction activities shall be repaired or replaced at the Contractor’s expense.

2. Any observed deformation that is greater than 3 inches, such as sliding, sloughing, or subsidence, of the levee access road, working pads, or adjacent areas must be addressed immediately. Construction activities in the distressed area shall cease until a mitigation plan has been submitted and approved.

3. Ruts should be repaired by removing any remaining aggregate from the rutted area, lightly scarifying the existing levee surface, replacing any lost material with clay, regrading the surface so it will properly drain, compacting with a roller to 95% of Standard Proctor maximum dry unit weight at optimum moisture according to ASTM D698, and replacing the crushed aggregate surfacing. Crushed aggregate surfacing shall meet Iowa DOT Article 4120 – Granular Surfacing and Granular Shoulder Aggregate, Class A Crushed Stone.

   a. The surfacing material should be placed on the top of levee to achieve the total original thickness, in layers not more than three inches thick.

   b. The material should be placed in two layers, with each layer compacted with four passes of an approved smooth-drum roller weighing not less than 150 pounds per linear inch of drum, or four passes of a pneumatic tire roller capable of developing a tire contact pressure of at least 45 psi.

   c. One pass is defined as one complete coverage of the entire surface with the roller or tractor treads.

   d. The surface should be sloped to drain, prior to placement of aggregate surfacing.
SPECIAL PROVISIONS
TO THE SUDAS STANDARD SPECIFICATIONS, 2019 EDITION

City of Des Moines
Des Moines River
Simon Estes Amphitheater Floodwall Improvements
Activity ID 08-2020-003

This project will be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition, as amended by the City of Des Moines Emergency Action Plan Supplemental Specifications (effective August 22, 2019) and by these Technical Supplemental Specifications. All provisions which are not so amended or supplemented remain in full force and effect.
TECHNICAL SPECIFICATIONS
DIVISION 01 – GENERAL PROVISIONS AND COVENANTS
SECTION 01 36 00 – EMERGENCY ACTION PLAN

PART 1 GENERAL

1.1. **PREPARATION AND SUBMITTAL OF THE EMERGENCY ACTION PLAN (EAP)**

A. Prior to equipment mobilization, materials delivery, and construction, the Contractor shall prepare, submit and follow an Emergency Action Plan (EAP) to address the requirements presented in this document and the procedures for high water conditions during construction. The Contractor shall not mobilize equipment or materials to the project site without written approval of EAP from the Owner/Engineer.

B. The Contractor’s EAP shall be submitted for approval to the Engineer. Submittals will be reviewed by the Engineer, Owner and the USACE. Contractor shall allow at least nine weeks for the review and processing of any submittal or resubmittal.

C. Levee Construction Staging

1. The Contractor shall ensure that the proposed construction will not involve any additional landward or riverward excavations in the critical area that may impact the flood protection structures in place at any time during construction.

D. Modification of Drawings and/or Specifications

1. Any proposed modifications of the approved Drawings or Specifications by the Contractor for construction activities located within the levee critical area, such as: changes to staging, excavation depths, shoring, hauling routes, levee access locations, addition of temporary stream crossings, groundwater dewatering, must be submitted to the Engineer for approval before changes are implemented.

1.2. **RELATED DOCUMENTS CONTENTS AND LIMITATIONS OF THE EAP**

A. The prepared EAP shall demonstrate compliance with all provisions in the Contract Documents so that the integrity of the levee system and its ability to provide flood protection will be maintained throughout the entire duration of construction.

B. The proposed construction will be performed during flood and non-flood event periods. However, the Contractor shall not degrade the flood protection system from March 15th through July 15th. The potential does exist for the rivers to rise to flood level during the proposed construction. The EAP shall demonstrate that the Contractor will have adequate provisions in place to address this potential.

C. The EAP shall include each of the following at a minimum:

1. Planned construction schedule
2. Site Map, including:
   a. Owner’s right-of-way
   b. Levee centerline with stationing
   c. Landward critical area, 500 ft off levee centerline
   d. Proposed hauling routes with site access plans with profile of access route/road(s)
   e. Proposed construction within the levee critical area

3. Detailed materials and equipment staging plan

4. List of all construction equipment that will be present

5. Temporary soils stockpile area(s)

6. Sheeting and shoring plans

7. Flood barrier integrity monitoring program

8. Equipment staging and storage plans for emergency actions

9. Dewatering plans

10. Site restoration plan

D. The EAP shall also include emergency contact information, including cell phone and page numbers of the project manager, project superintendent and foreman. Refer to Paragraph 1.04, following, for emergency contact personnel. The Contractor’s contact’s phone numbers provided shall be monitored 24 hours a day, 7 days a week.

E. Contractor shall provide two (2) copies of the record drawings/as-builts clearly marking the field adjustments, additions/deletions to the Drawings, and locations of all buried piping/infrastructure and critical elevations of same

1.3. EMERGENCY PROCEDURES

A. The following procedures shall be in place to address an emergency situation:

1. Daily Monitoring: The water level in Raccoon River shall be monitored on a daily basis by the Contractor. The extended forecast of future creek levels shall also be monitored by the Contractor.

2. Monitoring Agencies: Monitoring shall be done by visual inspection of Des Moines River water surface elevations, weather forecasts, and through the USGS websites for:
a. Stream Gage – 05482000 Des Moines River at 2nd Avenue at Des Moines, IA

3. Have temporary flood control procedures in place and ready for activation prior to the start of degrading flood protection.

B. Ceasing Operation

1. Per the revised closure justification tables, if Des Moines 2nd Avenue Gage water levels are within 5 feet of the published moderate flood stage of 25 feet, the Contractor shall cease improvement work and begin temporary flood control procedures if the flood protection is degraded.

2. The Owner and USACE representatives will be notified when the decision has been made to cease construction operations and implement temporary flood control procedures if necessary.

3. Removal and Relocation: All equipment, construction materials and stockpiled soils shall be removed in the event of high water and relocated to the landside of the flood protection barrier during high water events.

4. The Owner and the USACE representatives will be notified prior to resumption of construction.

1.4. EMERGENCY CONTACT INFORMATION

A. Owner

Steve Naber
City of Des Moines, Iowa City; Administration Building 400 E. Court Avenue Suite 200
Des Moines, IA 80309 Phone: 515.283.4920
Email: slnaber@dmgov.org

B. Engineer

Matthew Hoy, PE
Stantec Consulting Services Inc.; 1859 Bowles Ave. Suite 250 Fenton, MO 63026
Phone: 636-764-5851
Email: matthew.hoy@stantec.com

C. USACE – Rock Island District

USACE, Rock Island PO Box 2004
1.5. **MEASUREMENT AND PAYMENT**

D. Measurement and Payment: Emergency Action Plan shall be included in the lump sum item "Mobilization".
SPECIAL PROVISIONS
TO THE SUDAS STANDARD SPECIFICATIONS, 2019 EDITION

City of Des Moines
Des Moines River
Simon Estes Amphitheater Floodwall Improvements
Activity ID 08-2020-003

This project will be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition, as amended by the City of Des Moines Structural Supplemental Specifications (effective August 22, 2019) and by these Technical Supplemental Specifications. All provisions which are not so amended or supplemented remain in full force and effect.
TECHNICAL SPECIFICATIONS
DIVISION 03 – CONCRETE
SECTION 03 10 00 – CONCRETE FORMWORK

PART 1 GENERAL

1.1. DESCRIPTION OF WORK

A. This Specification covers furnishing, design, construction, erection, use and subsequent removal of forms for cast-in-place concrete structures.

1.2. RELATED DOCUMENTS

A. The conditions and description of work shown in other sections of these Specifications and the Plans of Proposed Improvement apply to this Section.

1.3. SUMMARY

A. Section Includes:

1. Concrete forming requirements
2. Requirements for concrete forming materials and accessories
3. Architectural form liners

B. Related Sections

1. Division 03 – Concrete
2. SUDAS Division 2 – Earthwork

1.4. REFERENCES

A. In addition to complying with all pertinent codes and regulations, the Contractor shall comply with all pertinent recommendations of the following standards:

1. American Concrete Institute, ACI 347, "Recommended Practice for Concrete Formwork".
2. American Concrete Institute, ACI SP-4, "Formwork for Concrete".
1.5. INFORMATIONAL SUBMITTALS

A. Submit manufacturer’s literature for plywood, form liners, form accessories, prefabricated forms and form coating. The type, shape, size, quality and strength of all materials of which forms are made shall be submitted for review.

PART 2 PRODUCTS

2.1. FACING MATERIALS

A. Forms shall be fabricated with facing materials that produce the specified finish within the surface requirements of this section.

1. Class A Finish
   a. This class of finish shall apply to all exposed exterior surfaces. The form facing material shall produce a smooth, hard, uniform surface equivalent to new well-matched tongue-and-groove lumber or new plywood panels conforming to NIST Product Standard PS-1, exterior type grade B-B, high density overlaid, or structural plywood.

2. Class B Finish
   a. This class of finish shall apply to all surfaces not exposed to public view. The sheathing shall be composed of tongue-and-groove or shiplap lumber, plywood conforming to NIST Product Standard PS-1 exterior type grade B-B plyform, concrete form hardboard or steel.

3. Class C Finish
   a. This class of finish shall apply to all concrete surfaces which backfill will be placed against. The sheathing may be of wood or steel.

2.2. FORM SEALERS

A. All form sealers shall be first quality of their respective kinds and subject to the approval of the Engineer.

2.3. FORM RELEASE AGENTS

A. Release agents shall be a commercial formulation of satisfactory and proven performance that will not bond with, stain or adversely affect concrete surfaces and will not impair subsequent treatment of concrete surfaces depending upon bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.

2.4. TIES AND SPREADERS
A. Type: All form ties shall be a "water-seal" type with plastic or wooden cones which do not leave an open hole through the concrete and which permits neat and solid patching at every hole.

B. Design: Form ties shall be designed so that ends or end fasteners can be removed without causing appreciable spalling at the faces of the concrete. When forms are removed, all metal shall be not less than one inch from the surface.

C. Wire Ties and Wood Spreaders: Do not use non-fabricated wire ties and wood spreaders.

2.5. CHAMFER STRIPS

A. Chamfer strips shall have a 3/4-inch leg, or as shown, and be made of wood, plastic or other approved material. Chamfer strips shall be provided for all exterior corners or as directed by the CQA Manager.

2.6. ALTERNATE FORMING SYSTEMS

A. Alternate forming systems may be used subject to the approval of the Engineer.

2.7. OTHER MATERIALS

A. All other materials, not specifically described but required for completion of concrete formwork, shall be as selected by Contractor subject to the approval of the Engineer.

PART 3 EXECUTION

3.1. DESIGN

A. The design and engineering of the formwork, as well as its construction shall be the responsibility of Contractor. The formwork shall be designed for loads, lateral pressure and allowable stresses in accordance with Chapter 2 of ACI Standard 347. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete and shall have sufficient rigidity to maintain specified tolerances.

3.2. EARTH FORMS

A. Trench earth forms neatly, accurately, and at least 2 inches wider than footing widths indicated on Plans of Proposed Improvement.

B. Trim sides and bottom of earth forms.

C. Construct wood edge strips at top of each side of trench to secure reinforcing and prevent trench from sloughing.

D. Form sides of footings where earth sloughs.
E. Tamp earth forms firm and clean forms of debris and loose material before depositing concrete.

3.3. FORMWORK CONSTRUCTION

A. General

1. Forms shall be true to line and grade and mortar-tight. Where forms for continuous surfaces are placed in successive units, care shall be taken to fit forms over the complete surface so as to obtain accurate alignment of the surface and to prevent leakage of mortar. Forms shall be constructed such that waterstops, and dowels and any other appurtenances can be placed as shown in the Plans of Proposed Improvement.

B. Temporary Openings

1. Temporary openings shall be provided in the bottom of the inside form of all wall forms to facilitate cleaning and inspection immediately before depositing concrete.

C. Assembly

1. Forms shall be so assembled that their removal will not damage the concrete.

D. Embedded Items

1. Contractor shall set all embedded items such as castings, anchor bolts, steps, and other such items required to be anchored in the concrete before the concrete is placed.

E. Bracing

1. Contractor shall brace forms in the following manner:

   a. Properly brace and tie the forms together so as to maintain position and shape and to ensure safety to personnel.

   b. Construct all bracing, supporting members, and centering of ample size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.

   c. Properly space the forms apart and securely tie them together, using metal spreader ties that give positive tying and accurate spreading.
F. Construction Tolerances

1. The forms shall be constructed and rigidly braced in-place within the following tolerances:

   a. Variation in architectural concrete (i.e. pedestal extensions, etc.) location, elevation, and dimensions:
      
      +/- 1/8 inch

   b. Variation in floodwall structure location and elevation:
      
      Horizontal: +/- 0.025 feet
      Vertical: 0.0 feet to +0.05 feet

   c. Variation in sizes and/or locations of floor and/or wall openings:
      
      +/- 1/4 inch

   d. Variation in thickness of slabs and walls:
      
      Minus 1/4 inch
      Plus 1/2 inch

   e. Variation in dimension of footings as shown on the Plans of Proposed Improvement:
      
      Minus 1/2 inch
      Plus 2 inches

   f. Variation in location of embedments other than anchor bolts:
      
      +/- 1/2 inch

   g. Variation in location of anchor bolts:
      
      Individual Groups 1/8 inch
      Bolt Groups 1/4 inch

2. In addition to the tolerances specified or shown, formwork shall be placed in accordance with tolerances in ACI 301.

G. Release Agent

1. After assembly and immediately prior to erection, coat all formwork with release agent as approved by the Owner.
H. Wetting

1. The inside surface of wood board forms shall be soaked with clean water and kept continuously wet for 12 hours before any concrete is placed. If forms have been erected for some time and have become dry so that joints have opened, then the forms shall be thoroughly soaked at least twice each day for at least three days prior to placing concrete. If the forms cannot be tightened to the satisfaction of the Owner, they shall be torn down and rebuilt.

I. Removal of Forms

1. Formwork not supporting weight of concrete, such as walls and similar parts of the work may be removed 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained. Contractor shall assume full responsibility for removal of formwork and forms.

J. Reused Forms

1. Reused forms shall be thoroughly cleaned of dirt, debris, concrete, and foreign matter. Forms shall not be reused if they have developed defects which would affect their tightness and strength. Marred surfaces in contact with concrete shall be repaired before reuse.

3.4. Inspection and Approval of Formwork

A. Forms, form joints, and reinforced steel placement shall be checked by CQA Manager before closing the forms. Concrete shall not be placed in any form until the placing of steel and erection of formwork have been completed and approved in completed state by CQA Manager. Immediately after completion of placement, tops of all forms shall be adjusted to line and approved by the Owner as to conformity within the tolerances specified herein.

3.5. Measurement and Payment

A. Formwork is incidental to cast-in-place concrete.

END OF SECTION 03 10 00
TECHNICAL SPECIFICATIONS
DIVISION 03 – CONCRETE
SECTION 03 20 00 – CONCRETE REINFORCEMENT

PART 1 GENERAL

1.1. DESCRIPTION

A. This Specification covers furnishing, cutting, bending, handling, and placing of steel reinforcement, dowels and reinforcement accessories for all reinforced cast-in-place concrete shown on the Plans of Proposed Improvement.

1.2. RELATED DOCUMENTS

A. The conditions and description of work shown in other sections of these Specifications, Plans of Proposed Improvement, and the Contractor Quality Control (CQC) Plan apply to this Section.

1.3. SUMMARY

A. Section Includes:

1. Concrete reinforcement materials and installation
2. Dowel materials and installation

B. Related Sections

1. Division 03 – Concrete
2. SUDAS Division 2 - Earthwork

1.4. REFERENCES

A. The provisions of the following codes, specifications, and standards latest editions shall apply:

1. American Concrete Institute, ACI-315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures."
2. Concrete Reinforcing Steel Institute, "Placing Reinforcing Bars" and "Manual of Standard Practice."
1.5. SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Prepare and submit to Engineer for review complete shop drawings in accordance with this section of these Specifications at least fourteen (14) days prior to beginning work. Contractor shall not allow delivery of the reinforcing steel to the job site until a review of the shop drawings has been completed by the Engineer. Shop drawings shall include the following:

   a. Reinforcement bar schedules complete with the quantity, shape and size, dimensions, weight per foot and total weights, and bending details.

   b. Details of bar supports including types, sizes, and support spacing and sequence.

   c. Drawing and elevation views detailing reinforcement placement.

B. Informational Submittals:

1. Mill tests of reinforcement bars shall be submitted prior to use for each 15 tons or less shipped to the job site. Tests shall be conducted in conformance with ASTM A615, and the methods described therein. Three (3) copies of each test report shall be submitted to the CQA Manager. The bars shall be properly tagged so as to permit identification of the heat number shown on the mill test report for any and all steel delivered to the work site.

PART 2 PRODUCTS

2.1. BAR REINFORCEMENT

A. All bar reinforcement shall be new billet steel deformed bars of American manufacture conforming to ASTM A615 Grade 60, unfinished.

2.2. WELDED WIRE FABRIC REINFORCEMENT

A. All welded plain wire fabric shall be new steel, ASTM A185, in flat sheets or coiled rolls, unfinished.

2.3. DOWELS

A. Plain Dowels: ASTM A615/A615M, round, smooth surface, Grade 40.

B. Reinforcement Dowels: ASTM A615/A615M, deformed, new billet steel, Grade 60.

2.4. WIRE TIES

A. Within 2 inches of exposed concrete surface: Minimum 16-gage soft annealed zinc coated steel.
B. Elsewhere: Minimum 16 gage black annealed type steel.

2.5. BAR SUPPORTS

A. Bar supports shall conform to ACI-315. Contractor shall provide sufficient bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2.6. OTHER MATERIALS

A. All other materials not specifically described but required for proper completion of concrete reinforcement, shall be as selected by Contractor subject to approval of Engineer.

2.7. REJECTION OF MATERIALS

A. Reinforcement with any of the following defects will not be permitted in the work:

1. Bar lengths, depth and bends exceeding the specified fabrication tolerances.

2. Bends or kinks not indicated on the Plans of Proposed Improvement or shop drawings.

3. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 EXECUTION

3.1. FABRICATION

A. Reinforcing steel shall be accurately fabricated to dimensions shown on the Plans of Proposed Improvement.

B. Reinforcing bars may be mill or field bent. No bars partially embedded in the concrete shall be field bent. All bends shall be made in compliance with requirements of the American Concrete Institute Standard 315 and by approved machine methods except as noted otherwise on the Plans of Proposed Improvement. All bends shall be made without heating.

3.2. HANDLING AND PROTECTION

A. Protection: Use all means necessary to protect concrete reinforcement before, during, and after installation and to protect the installed work.

B. Storage: Steel reinforcement shall be stored above the surface of the ground upon platforms, skids, or other supports and shall be protected, as far as practicable, from mechanical injury, surface deterioration caused by conditions producing rust, and fouling with dirt, grease and other bond breaking coatings.
C. Identification: All necessary precautions to maintain identification of bars after bundles are broken shall be exercised.

3.3. **PLACING**

A. Surface Coatings: All reinforcement shall be free from dirt, oil, grease, paint, mill scale, loose or thick rust, or other coatings which might destroy or reduce its bond with the concrete when the surrounding concrete is placed.

B. Bracing Reinforcement: All reinforcement shall be placed in accordance with Plans of Proposed Improvement and shall be held so securely in position by wiring and blocking from the forms and by wiring together at intersections that it will not be displaced during the depositing and compacting of the concrete. Tack welding of bars will not be permitted.

C. Support of the Work: Piping and conduits shall not be supported or tied directly to the steel. They shall be supported by bar chairs or support bars provided for piping or conduits only.

3.4. **SPlices**

A. All splices in reinforcement shall be as shown on the Plans of Proposed Improvement or as directed by the Engineer.

B. Splice by lapping ends, placing bars in contact, and tightly wire tying.

C. Alternate sides for splices of horizontal reinforcing bars in all walls.

3.5. **INSTALLATION OF PLAIN DOWELS**

A. Place plain dowels across contraction or expansion joints in accordance with Plans of Proposed Improvement.

B. Place and embed dowel sleeve in initial concrete placement across joint.

C. Prior to placing adjoining concrete install one half length of dowel in dowel sleeve.

D. Keep dowels in straight alignment as shown on Plans of Construction, during and subsequent to concrete placement.

3.6. **TOLERANCES**

A. Minimum cover for reinforcement shall conform to the dimensions shown on the Plans of Proposed Improvement.

B. Allowable Tolerances

1. The following tolerances will be allowed in the placement of reinforcing bars as shown on the Plans of Proposed Improvement:
a. Variation in protective cover
   1/4 inch for 2-inch cover
   3/16 inch for 3-inch cover

b. Variation of spacing
   1/12 of indicated spacing

2. The tolerances indicated above apply to large areas uninterrupted by openings or embedments. Bar spacing may be adjusted locally up to one-third the specified spacing if required to clear openings or embedments.

C. In addition to the tolerances specified or shown, reinforcement shall be placed in accordance with tolerances in ACI 301.

### 3.7. OBSERVATIONS

A. CQA Manager shall have 24 hours’ notice and the opportunity to observe and comment on the placement of reinforcing steel before concrete is placed.

B. Such observations are in the nature of assisting Contractor to minimize errors, and in no case will they relieve Contractor of the responsibility to provide the materials and workmanship required by the Construction Documents.

### 3.8. MEASUREMENT AND PAYMENT

A. Concrete reinforcement is incidental to cast-in-place concrete

END OF SECTION 03 20 00
TECHNICAL SPECIFICATIONS
DIVISION 03 – CONCRETE
SECTION 03 30 00 – CAST-IN-PLACE CONCRETE

PART I GENERAL

1.1. DESCRIPTION OF WORK

A. This Specification covers the furnishing of all material, equipment, labor and plant, and performing all operations specified herein, including the manufacturing, transporting, placing, finishing, and curing of all cast-in-place concrete.

1.2. RELATED DOCUMENTS

A. The conditions and description of work shown in other sections of these Specifications, Plans of Proposed Improvement, and the Construction Quality Control (CQC) Plan apply to this Section.

1.3. SUMMARY

A. Section Includes:
   1. Installation procedures for cast-in-place concrete
   2. Concrete mixture requirements

B. Related Sections
   1. Division 03 – Concrete

1.4. REFERENCES

A. In addition to complying with all pertinent codes and regulations, Contractor shall comply with all applicable provisions of the following standards.

B. American Concrete Institute (ACI):
   2. ACI 301, "Specifications for Structural Concrete Buildings".
   3. ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete".
   4. ACI 305, "Recommended Practice for Hot Weather Concreting".
   5. ACI 306, "Recommended Practice for Cold Weather Concreting".
6. ACI 308, "Recommended Practice for Curing Concrete".
7. ACI 309, "Recommended Practice for Consolidation of Concrete".
8. ACI 311, "Recommended Practice for Concrete Inspection".
9. ACI 350, "Code Requirements for Environmental Engineering Concrete Structures".

C. American Society for Testing and Materials International (ASTM):

1. ASTM C-33, "Standard Specification for Concrete Aggregates".
5. ASTM C-309, "Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete".
6. ASTM C-441, "Standard Test Method for Effectiveness of Pozzolans or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction".
8. ASTM C-618, "Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete".
11. ASTM C-1017/C-1017M, "Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete".
13. ASTM C-1218, "Standard Test Method for Water-Soluble Chloride in Mortar and Concrete".

D. United States Army Corps of Engineers (COE):

1. COE CRD-C 572, “Specifications for PVC Waterstops”.

2. COE Engineering Manual, EM 1110-2-2104, ”Strength Design for Reinforced-Concrete Hydraulic Structures”.

E. Iowa Department of Transportation (Iowa DOT):

1. Iowa DOT. "Standard Specifications for Road and Bridge Construction", (Current Edition)

1.5. **ACTION SUBMITTALS**

A. Concrete Placement Plan: Submit a plan detailing approach and schedule for formwork, reinforcement, concrete delivery, placement, curing, protection, and finishing for review and approval by CQA Manager prior to initiation of concrete work. Plan shall include:

1. Overall schedule of concrete placement including sequence and timing of formwork and placement, stripping, finishing and joint construction,

2. Rate of concrete placement and management of resulting traffic loads.

3. Conveyance plan, including belts, conveyors, concrete pumps, etc.

4. Consolidation plan, including specifications of proposed vibratory and other equipment.

5. Curing medium and methods to be used in conformance with applicable standards.

6. Cold-weather placing plan including proposed materials, methods, and protection and conforming to the requirements of applicable standards.

7. Hot-weather placing plan including proposed materials, methods, and protection and conforming to the requirements of applicable standards.

B. Concrete Materials Statement: Submit materials and mix proportions (including admixtures) proposed for each specified class of concrete at least 30 days prior to initiation of work using that class of concrete. Statement shall include results of mix designs and laboratory tests including:

1. Concrete supplier proposed and location of plant or plants at which the concrete will be batched.
2. Mix Designation and Identification

3. Mix proportions based on saturated, surface-dry (SSD) Aggregates and one cubic yard

4. Moisture content of aggregates as used in trials and corrections for aggregate weights used

5. Specific gravity and absorption of the aggregates

6. Yield and wet unit weight

7. Strength results and unit weights of cylinders

8. Strength requirements for both the design strength and the required average strength with the applicable ASTM C-94 over design factor. Compressive Strength Developed at 7 Days and 28 Days from Not Less Than Three (3) Test Cylinders Cast for Each 7 Day and 28 Day Test, and for Each Design Mix.

9. Cement source, brand, type, composition and amount

10. Pozzolan source, brand, type, composition and amount

11. Aggregate source, gradation and quality

12. Admixture brand, type and dosage

13. Mix temperature

14. Slump – design and actual

15. Air Content – design and actual

16. For mixes with a high-range, water reducer present, the slump and air content at 15 to 20 minute time increments

17. Concrete testing agency

C. Concrete Materials Statement shall be accompanied by test reports from an accredited laboratory which shows that proposed materials and proportions yield a concrete of the quality required by this Section. No substitution shall be made in the source or type of materials used in the work without additional tests to demonstrate that the quality of the substituted materials and new concrete are satisfactory.

D. Waterstops:

1. Shop drawings showing locations, sizes, types, joint details and premolded connections.
2. Manufacturer’s product data for waterstops and for joining waterstops.

1.6. INFORMATIONAL SUBMITTALS

A. Delivery Tickets: Ready-mixed concrete producer shall furnish duplicate delivery tickets. Contractor shall retain one ticket and submit other ticket to CQA Manager at time of concrete delivery. Delivery tickets shall indicate delivery date, type of concrete, class, cement content, admixtures, and amount of water.

B. Concrete Accessories: Manufacturer’s product data.

C. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.7. QUALITY REQUIREMENTS

A. Perform Work in accordance with ACI 301 and ACI 350 and all requirements of this Section and related sections of this specification.

B. Conform to ACI 305 when concreting during hot weather.

C. Conform to ACI 306.1 when concreting during cold weather.

D. Acquire cement, fly ash, admixtures and aggregate from one source for the Work.

1.8. COORDINATION

A. Concrete shall not be placed in immediate adjacent blocks of slabs or in immediate adjacent lifts of walls until abutting concrete has been in place at least four days.

B. Locate and construct joints as shown on Plans of Proposed Improvement. Relocation, addition or elimination of any joint shall be subject to written approval of Engineer.

C. Coordinate placement of joint devices, such as waterstops and dowels, with erection of concrete formwork and placement of form accessories.

1.9. DEFINITIONS

A. Construction Joint: A construction joint is defined as a planned joint where two placements of concrete meet, across which development and maintenance of bond are required, through which any reinforcement that may be present is not interrupted.

B. Contraction Joint: A contraction joint is defined as a planned joint where two placements of concrete meet, across which no bond is achieved and through which no reinforcement passes. Contraction joints serve to provide for volumetric shrinkage of monolithic concrete and for movement between monolithic units at established joints, thus preventing the formation of objectionable shrinkage cracks elsewhere in
the concrete. Unless otherwise indicated or specified, contraction joints in water bearing members shall be provided with a waterstop and/or sealant groove of the shape indicated.

C. Expansion or Isolation Joints: Expansion or isolation joints are defined as a planned joint that separates two adjacent concrete placements to allow the concrete to expand freely. Typically, a space is provided between the two placements by placing a filler joint material against the first pour, which acts as a form for the second pour.

D. Abrupt Surface Irregularities: Offsets and fins in formed concrete surfaces resulting from displaced, mismatched, or misplaced forms, sheathing, or liners or from defects in forming materials. Abrupt irregularities shall be measured within one 1 inch of the irregularity.

E. Gradual Surface Irregularities: Irregularities in formed concrete surfaces resulting from warping and similar uniform variations from planeness or true curvature. Gradual surface irregularities shall be measured by determining gap between concrete and near surface along a five foot straightedge, measured between contact points.

PART 2 PRODUCTS

2.1. CEMENT

A. Portland Cement: ASTM C-150, Type I or II, low-alkali containing less than 0.60 alkalies or air-entraining Portland cement: ASTM C-150, Type IA or IIA.

B. Cement used throughout the work shall be uniform in color and shall match the color of the existing concrete when cured.

C. Cement shall be properly stored and protected from weather, dampness or other destructive agents. Any cement which is damaged will be rejected and not permitted to be used in the work.

D. Portland cement shall be subject to sampling and testing in accordance with ASTM Designation C-150.

2.2. POZZOLAN

A. Pozzolan shall be used for all concrete mixes with a minimum proportion of 20% by weight up to a maximum proportion of 40% by weight when mixed with Portland cement.

B. ASTM C618, Class F, fly ash having the following properties:

1. Loss on ignition limited to a maximum of 2.5 percent.
2. Contain less than 4 percent sulfur trioxide by weight.

C. Pozzolan shall be furnished from the same source and supplier for all concrete used in the submitted mix designs. Pozzolan from another source other than that used in the approved mix designs will be rejected.

D. Pozzolan color shall not substantially alter the resulting concrete from the normal gray color and appearance.

E. Pozzolan shall be properly stored and protected from weather, dampness or other destructive agents. Any pozzolan which is damaged will be rejected and not permitted to be used in the work.

2.3. AGGREGATES

A. Confirm to ASTM C33. Local aggregates not complying with ASTM C33 but which have shown by test and actual service to produce concrete of adequate strength and durability may be submitted for approval.

B. Aggregates shall be nonreactive for alkali-silica reactivity (ASR) and shall be washed before use. Aggregates shall not be sourced from quarries where potential alkali reactivity expansion of aggregates exceeds 0.10 percent at 16 days as determined by ASTM C1260 or C1567.

C. Do not use aggregates containing soluble salts or other substances which cause stains on exposed concrete surfaces.

D. Aggregates for all concrete shall be from the same source quarry used to develop concrete mixes.

E. Fine aggregates and coarse aggregates shall be regarded as separate ingredients.

F. Fine Aggregate:

1. Hard, dense durable particles of either sand or crushed stone regularly graded from coarse to fine, free from loam, clay, lumps and foreign material, and shall conform to the provisions of ASTM C-33.

2. Fine aggregate shall not exceed 40 percent by weight of the combined aggregate total.

3. The fineness modulus of the fine aggregate shall not be less than 2.3 or more than 3.1, nor vary by more than 0.20 from the value assumed in selecting proportions of the concrete. If this value is exceeded, the fine aggregate is rejected unless suitable adjustments are made in proportions of the fine and coarse aggregate.

G. Coarse Aggregate:
1. Clean, uncoated, processed aggregate free from clay, mud, loam, and other foreign material. Aggregate may be crushed natural rock, crushed stone, or washed natural or crushed gravel, and shall conform to the provisions of ASTM Designations C-33.

2. Maximum particle size of coarse aggregate shall be one inch.

H. Sampling and Testing

1. When testing is required, the sampling shall be completed in accordance with ASTM Standards referenced herein. The source from which the aggregates will be obtained shall be selected in advance. Samples of aggregates, when requested for testing, shall be furnished at least fifteen (15) days before placing of concrete is expected to begin.

2. Unless otherwise specified, 150 pounds of sand and 200 pounds of coarse aggregates will be required for initial and periodic tests.

3. Unless otherwise specified, all test samples shall be taken by or in the presence of CQA Manager or his representative and delivered to the designated point by CQA Manager or his representative for testing. Additional tests may be made by CQA Manager. Routine control tests and analysis of the aggregates at various stages in the processing operations may be requested by the CQA Manager.

4. Aggregates shall not be sourced from quarries where potential alkali reactivity expansion of aggregates as determined by ASTM C1260 or C1567 exceeds 0.10 percent at 16 days.

5. All materials must be tested in accordance with these Technical Specifications and approved by the CQA Manager before use in the work, unless otherwise specified by the CQA Manager.

6. Once a material has been tested and approved for use, it shall be Contractor's responsibility to use material throughout the job which is equal in all respects and from the same source as the approved material Contractor delivered to the testing laboratory.

7. The CQA Manager shall order additional material tests, if in his opinion, the material stored or being used is not equal to the approved tested material.

8. Each material must come from a single source, unless otherwise approved in writing by the CQA Manager. If Contractor desires to change suppliers and/or sources of materials, after materials have been tested and approved, the CQA Manager may order additional material tests.

9. In the case of ready-mixed concrete the requirements for aggregate testing shall be the same unless otherwise specified by the CQA Manager.
2.4. **WATER**

A. Clean, potable and free from oil, salt, acid, alkali, organic matter, or other deleterious substances in conformance with ASTM C-94/C-94M and its source shall be subject to approval of the CQA Manager.

2.5. **ADMIXTURES**

A. Air Entrainment: Conform to ASTM C260, be compatible with water reducing and any other admixture, and shall be subject to tests in accordance with ASTM C-233. If air-entraining cement is used, any additional air-entraining admixture shall be of the same type as that in the cement. Air-entraining admixtures shall be added to the concrete mixture in the form of solutions rather than solids. The manufacturer's storage recommendations shall be followed.

B. Water Reducing Admixtures: Conform to ASTM C494, Type A with not more than 0.1 percent chloride ions. Use water reducing admixture to increase workability of mix.

C. Set Retarders: ASTM C494, Type B, shall not be used in concrete unless, otherwise authorized in writing by Engineer.

D. Water Reducing Admixtures and Set Retarders: ASTM C494, Type D shall not be used in concrete, unless otherwise authorized in writing by Engineer.

E. High Range Water Reducing Admixtures: Conform to ASTM C494, Type F with not more than 0.1 percent chloride ions. Use HRWRA to increase workability of mix.

F. High Range Water Reducing Admixtures and Retarders: ASTM C494, Type G shall not be used in concrete, unless otherwise authorized in writing by Engineer.

G. Accelerating Admixtures: ASTM C494, Type C or E including calcium chloride or anti-freeze compounds, shall not be used in concrete unless otherwise authorized in writing by Engineer.

2.6. **FORMWORK**

A. Comply with Section 03 10 00 - Concrete Forming And Accessories.

2.7. **CONCRETE REINFORCEMENT**

A. Comply with Section 03 20 00 – Concrete Reinforcing

2.8. **CONCRETE ACCESSORIES**

A. PVC Waterstop: Polyvinyl chloride, ribbed type, 6 inch wide, maximum possible lengths, preformed corner sections, and heat welded jointing. Use virgin PVC with no reclaimed material. SIKA 679 or approved equal.
B. Hydrophilic Cold Joint Waterstop: Water swelling type; Sika Hydrotite CJ or approved equal.


D. Fiber Expansion Joint Filler (Fiber PJF): Resilient bituminous type, non-extruding, ASTM D1751, 1/2-inch thick (unless otherwise shown), of depth as shown on Plans of Proposed Improvement.

E. Polystyrene Joint Filler/Bond Breaker: Rigid closed-cell extruded polystyrene foam panels; ASTM C-578, Type VI, density 1.8 pcf minimum, 2-inch thick or as required.

F. Joint Sealant: Pre-molded joint filler shall be Type I or Type II filler conforming to ASTM D-1752 “Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction”.

G. Bond Breaker: Asphalt impregnated felts, 15 pounds, polyethylene tape, coated paper, metal foil, or other approved material.

H. Dowel Sleeves: Manufactured round dowel sleeves to accept 3/4-inch diameter by 18-inch long smooth dowels, 9-inch sleeve length; Sika Greenstreak Speed Dowel, or approved equal.

2.9. CONCRETE MIXES

A. Color and appearance of new concrete shall match adjacent existing concrete.

B. Mix Designs: Contractor shall be responsible for initial mix designs and related testing to the mix designs, which shall conform to the following requirements:

1. All materials used in the work shall be subject to inspection and tests at the batch plant and at the job site.

2. Laboratories and personnel used by Contractor for testing and mix designs shall conform to ASTM E329 and the guidance of the ASTM "Manual of Aggregate and Concrete Testing". Contractor shall use an independent testing laboratory, approved by the Owner, for preparing and reporting proposed mix designs.

3. Prepare design mixes for each type of concrete on the basis of compressive strength by methods recommended in ACI 350.

4. Proportion mixes by laboratory trial batch method using materials to be employed on project for each class of concrete required. Prepare test specimens in accordance with ASTM C192 and conduct strength tests in accordance with ASTM C39 as specified in ACI 301.
5. Trial batches and compression tests shall be made of a proposed job mix to determine whether concrete mix is adequate. If so determined, materials and proportions stated shall constitute job mix. After job mix has been designated, neither the source, character or grading of aggregates nor type or brand of cement or admixture shall be changed without prior notice to and approval of CQA Manager.

6. Water-cement ratios of all mixes shall be determined from a water-cement ratio curve plotted from tests run at constant slump of the cement and aggregates used on the job. Mixes shall be run using both the design slump and the maximum slump permitted. In the case of air-entrained concrete, mixes shall be run using both the maximum slump and air content and the design air content and slump. The strength of the mixes at design slump and air content shall meet the specified design strength plus the applicable over design factor as stipulated in ASTM C94, Table 4 - Average Strength Requirements for Limiting Probability of Tests Falling below the Specified Strength, to one out of every ten tests.

7. All concrete mixes shall be designed using the minimum water possible subject to workability requirements.

8. All concrete shall be air-entrained. Air-entrainment shall be accomplished by using an air-entrained Portland cement or by using an air-entraining admixture with normal Portland cement. If the entrained air content falls below the specified limits when using air-entrained cement, an air-entraining admixture shall be added in sufficient quantity to bring the entrained air content within the specified limits. If the entrained air content is found to be greater than the maximum specified limits when using an air-entraining cement, the use of that cement shall be prohibited and air-entrainment shall be accomplished by using an air-entraining admixture with Portland cement. Air-entraining admixtures shall be added to a portion of the mixing water by means of a mechanical batcher in a manner that will ensure uniform distribution of the agent throughout the batch.

C. Contractor shall provide production concrete conforming to ASTM C94 including the applicable overdesign factor of Table 4 for limiting the probability of tests falling below the specified strength (f′c) to one out of every ten tests. The mixes shall conform to the general guidance listed below for each specific use.

D. Strength requirements are for 28 days of age unless otherwise noted. Contractor may provide stronger mixes within guidelines given below that allow higher early strengths if necessary for form removal and to assist schedule. Contractor shall be responsible for evaluating construction loads and controlling concrete operations so that Contractor does not overload or damage the structure.

E. All cast-in-place concrete, designated as Class A, shall meet the following proportioning and design requirements without the use of an ASTM C494, Type F, high range water reducing admixture:
Minimum
28-Day Compressive
Strength (psi)  Air Content
(%)  Cementitious
Content (lbs./cu.yd.)  Maximum
Water/
Cementitious
Ratio  Slump
(inches)

4,000  4-7  560 - 620  0.45  3-5

1. ASTM C494, Type F, high range water reducing admixture may be used to improve
consistency and workability, for pumping concrete or required when using form
liners on stem walls to achieve finish.

F. The consistency of the concrete shall be such as to allow it to be worked into place
without segregation or excessive latency. The consistency of concrete shall be such
that it can be worked readily into place, such as corners and angles of forms and
around reinforcement, without permitting the materials to segregate or excess water
to collect on the surface.

G. The criteria specified herein are maximums or minimums and shall not be construed
to predetermine fixed quantities of materials in the mix design, or to preclude change
of an accepted mix design at any time. Mix design adjustments may be requested by
Contractor when characteristics of materials, job conditions, weather, test results or
other circumstances warrant; and as accepted by the CQA Manager. Laboratory test
data for revised mix designs and strength results must be submitted to and accepted
by the CQA Manager before being used in the work.

PART 3 EXECUTION

3.1. PRODUCTION OF CONCRETE

A. Concrete may be furnished by batch mixing at or near the site or by ready-mix
methods. Batch plants shall conform to requirements of the applicable State’s
Highway Department or Department of Transportation specifications for automatic
proportioning equipment and as specified herein, and shall be previously approved
by the State’s Highway Department or Department of Transportation.

B. Measure, batch, and mix concrete materials and concrete according to
ASTM C 94/C 94M.

C. Aggregates shall be stored or stockpiled in such a manner that separation of coarse
and fine particles of each size will be avoided and that various sizes will not become
intermixed before proportioning. Methods of handling and transportation of
aggregates shall be such to avoid contamination, excessive breakage, and
segregation.

D. Measurement
1. Scales for weighing aggregates and cement shall be beam or spring-less dial type and shall be accurate within one percent under operating conditions. All exposed fulcrums, clevises and similar working parts of scales shall be kept clean.

2. Water measurements shall be obtained through the use of meters or weight batchers that are accurate to the tolerance specified in this section of these Technical Specifications.

3. Cement shall be measured by weight or by bags of 94 pounds each. When cement is measured by weight, it shall be weighed on a scale separate from that used for other materials, and in a hopper entirely free and independent of the hopper used for weighing the aggregates. When cement is measured by bags, no fraction of a bag shall be used unless weighed.

4. Aggregates shall be measured by weight. Mix proportions shall be based on saturated, surface-dry weights. The batch weight of each aggregate shall be the required saturated, surface-dry weight plus the weight of surface moisture it contains.

5. Mixing water shall consist of water or ice added to the batch, water occurring as surface moisture on the aggregates and water introduced in the form of admixtures. The added water shall be measured by weight or volume. Added ice shall be measured by weight. Wash water shall not be used as a portion of the mixing water for succeeding batches.

6. Dry admixtures shall be measured by weight, while paste or liquid admixtures are measured by weight or volume.

7. The quantities of materials in each batch of concrete shall be within the following percentages of the required batch quantities:

<table>
<thead>
<tr>
<th>Material</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>plus or minus 1 percent</td>
</tr>
<tr>
<td>Aggregates</td>
<td>plus or minus 2 percent</td>
</tr>
<tr>
<td>Water</td>
<td>plus or minus 1 percent</td>
</tr>
<tr>
<td>Admixtures</td>
<td>plus or minus 3 percent</td>
</tr>
</tbody>
</table>

E. Mixers shall be capable of thoroughly mixing concrete ingredients into a uniform mass within the specified mixing time and of discharging the mix without segregation. Each mixer or agitator shall bear a manufacturer's rating plate indicating rated capacity and recommended speeds of rotation, and shall be operated in accordance with these recommendations.

F. No mixing water in excess of amount called for by job mix shall be added to concrete during mixing or hauling or after arrival at delivery point. Mix shall be tempered using a water reducing admixture or high range water reducing admixture instead of water at point of delivery.
G. Concrete shall be uniform and thoroughly mixed when delivered to the Work. Variations in slump of more than one inch within a batch will be considered evidence of inadequate mixing and shall be corrected by changing batching procedures, increasing mixing time, changing mixers, or other means. Mixing time shall be within limits specified below unless Contractor demonstrates by mixer performance tests that adequate uniformity is obtained by different times of mixing. For this purpose, the testing program and uniformity requirements shall be as set forth in ASTM C94/C94M.

H. For concrete mixed at work site with stationary construction mixers, time of mixing after all cement and aggregates are in the mixer drum shall be not less than 12 minutes. Batch shall be so charged into the mixer that some water will enter in advance of cement and aggregates and all mixing water shall be introduced into drum before 3 minutes of mixing time has elapsed. Controls shall be provided to ensure that the batch cannot be discharged until required mixing time has elapsed.

I. When concrete is mixed in a truck mixer loaded to its maximum capacity, number of revolutions of the drum or blades at mixing speed shall be not less than 70. If the batch is at least two cubic yards less than maximum capacity, number of revolutions at mixing speed may be reduced to not less than 50. Mixing in excess of 100 revolutions shall be at speed designated by manufacturer of equipment as agitating speed. The mixing operation shall begin within 30 minutes after cement has been added to aggregates and water shall be added during mixing. When mixing is begun during or immediately after charging, a portion of mixing water shall be added ahead of, or with, other ingredients.

J. When concrete is partially mixed at a central plant and the mixing is completed in a truck mixer, the mixing time in the central plant mixer shall be the minimum required to intermingle ingredients and shall be not less than 30 seconds. Mixing shall be completed in a truck mixer and number of revolutions of drum or blades at mixing speed shall be not less than 50. Mixing in excess of 100 revolutions shall be at speed designated by manufacturer of equipment as agitating speed. Total number of revolutions shall not exceed 300 before discharge of concrete, unless otherwise specified.

K. For central plant mixed concrete, mixing in stationary mixer shall meet same requirements as batch mixing at site. When an agitator, or truck mixer used as an agitator, transports concrete that has been completely mixed in a stationary mixer, mixing during transportation shall be at speed designated by manufacturer of equipment as agitating speed.

L. The CQA Manager may increase the minimum mixing time for any type of mixer specified herein, provided the mixer does not produce the desirable quality with respect to uniformity of mixture, slump, and air content, or upon proof by tests that undesirable quality of concrete produced by a given mixer with regard to compressive strength would be prevented by additional mixing.
M. Use of non-agitating equipment to transport concrete to point of delivery will not be permitted.

N. The mixing time shall be measured from the time all cement and aggregates are charged into the mixture until the mixture is ready for discharging.

3.2. **PREPARATION BEFORE PLACING**

A. Verify that reinforcement is placed properly with the required clearance and that all reinforcing steel is free of oil or other coatings that might impair bond with the concrete shall be completed before placing any concrete.

B. Verify that castings, anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, clean and free of oil or loose coatings of paint, rust or scale, and will not interfere with placing concrete.

C. Verify soil and rock foundations have been adequately prepared to receive concrete.

D. Formwork shall be completed and checked to be watertight and to the proper lines. Snow, ice, chips, dirt, and other extraneous materials shall be removed. Thoroughly wet the forms (except in freezing weather), or oil them; and remove all standing water.

E. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

F. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.

G. In locations where new concrete is doweled to existing work, install dowels in accordance with requirements of Section 03 20 00 – Concrete Reinforcing and Section 03 60 00 - Grouting.

H. Remove debris and ice from formwork, reinforcement, and concrete substrates prior to concrete placement.

I. Thoroughly saturate existing concrete one hour before placing new concrete against existing concrete. Maintain surface of existing concrete in a moist condition until new concrete is placed.

J. Remove standing water from areas receiving concrete before concrete is placed.

K. Remove hardened concrete and foreign materials from the inner surfaces of the conveying equipment.

L. Concrete shall not be placed until the subgrade, forms and steel reinforcement have been inspected and approved.
M. Contractor shall have all equipment and materials required for curing available at the site ready for use before placement of concrete begins.

N. Prior to placing concrete on drain fill material, the drain fill material shall be covered with a continuous membrane of nonwoven geotextile fabric.

3.3. **Notification**

A. Contractor shall give at least twenty-four (24) hours notice to CQA Manager each time Contractor intends to place concrete. Such notice shall be far enough in advance to give CQA Manager adequate time to inspect subgrade, forms, steel reinforcement and other preparations for compliance with Technical Specifications and Plans of Proposed Improvement before concrete is delivered for placing.

B. No concrete shall be placed until the CQA Manager, or his representative, has given his approval of the forms and reinforcing steel in place. If the reinforcing steel is not placed in accordance with the Plans of Proposed Improvement, the CQA Manager will stop Contractor from placing any concrete until the error is corrected. Under no circumstances will an attempt be made to correct errors by inserting additional unscheduled bars.

C. No concrete shall be placed except in the presence of the CQA Manager or his representative.

3.4. **Concrete Sampling and Testing**

A. Standard tests of the material and concrete shall be made by CQA Manager’s approved testing service, as required by these Specifications. Retests required due to non-conformity of the materials shall also be made by CQA Manager’s testing service. The following tests will be performed by the methods and minimum frequencies indicated.

1. Sampling Fresh Concrete: ASTM C-172; each sample shall be obtained from a different batch of concrete on a random basis.

2. Slump: ASTM C-143; one test for each set of compressive strength test specimens and for each truck for acceptance.

3. Air Content: ASTM C-231, pressure method; one for each set of compressive strength test specimens.

4. Compressive Test: ASTM C-31; one set of six (6) standard 6x12 cylinders for each compressive strength test. One set of specimens shall be cast from a sample of concrete placed in one day or each 50 cubic yards placed, whichever is minimum. The CQA Manager or his representative will determine and record the batch number for the concrete and the exact location in the work at which each batch represented by test specimens is deposited.
5. Concrete Temperature: For site batched concrete, test hourly when air temperature is 40°F and below, and when 80°F and above; and each time a set of compressive test specimens is made. For ready-mix concrete, test every delivered truck.

B. Compressive Strength

1. ASTM C-39; for each set of compressive strength test specimens there shall be one test performed at three (3) days and another at seven (7) days after placing for information and two (2) tests at twenty-eight (28) days for acceptance. Two specimens shall be held in reserve.

2. The acceptance test results shall be the average of the two strengths of the specimens at 28 days. If one specimen in the test manifests evidence of improper sampling, molding, transportation or testing, it shall be discarded and the reserve specimen shall replace it. If two specimens in a test show any defects, the test result shall be the remaining cylinder strength. If more than two specimens show evidence of damage the test shall be discarded, and the concrete shall be tested as indicated in (C).

C. Core Sample: A testing service approved by the Owner, shall take core samples of in-place concrete when test results are such that there is reasonable doubt that the specified concrete strengths and other characteristics have not been attained in the structure. The testing service shall conduct tests to determine the strength and other characteristics of the in-place concrete by compression tests on cored cylinders complying with ASTM C-42. Contractor shall pay for such tests conducted and any other additional testing that may be required.

D. Reports: Test results shall be reported in writing to the CQA Manager, Owner and Contractor on the same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, designate Contractor, name of concrete supplier and truck number (if applicable), name of concrete testing service, concrete type and class, location of concrete batch in the structure, design compressive strength at 28 days and the compressive breaking strength for all tests completed for a particular set of cylinders on the day that the reports are submitted.

E. Storage Facility: Contractor shall provide a stable, insulated storage facility equipped with thermostatically controlled heat for the storage of compression test cylinders for at least the first 24 hours after molding.

3.5. CONVEYING CONCRETE

A. Concrete shall be conveyed from mixer to forms as rapidly as practicable, by methods which will prevent segregation or loss of ingredients. There shall be no vertical drop greater than five (5) feet, except where suitable equipment is provided to prevent segregation and where specifically authorized by the CQA Manager.
B. Belt conveyors, chutes or other similar equipment in which the concrete is delivered to the structure in a thin, continuously exposed flow, will not be permitted, except for very limited or isolated sections of the work and only then if approved in writing by the CQA Manager. Such equipment shall be arranged to prevent objectionable segregation.

C. Maximum Concrete Drop: Where wall forms exceed five (5) feet in height, suitable measures, such as the use of elephant trunks or drop chutes, where practicable, or portholes, shall be provided in the forms to limit the vertical drop of the concrete to a maximum of five (5) feet. Openings shall be spaced around the perimeter of the formed area so that lateral flow of fresh concrete will be limited to three (3) feet. Drop chutes which may be provided to convey the concrete through wall ports shall have an outside pocket under each form opening to stop the concrete and allow it to flow easily over into the form without separation.

D. Pumping: Pumping or pneumatic conveying equipment, if used, shall be of suitable kind with adequate pumping capacity. Pneumatic placement shall be controlled so that segregation does not occur in the discharged concrete. Concrete shall not be conveyed through pipe made of aluminum or aluminum alloy.

3.6. PLACING CONCRETE

A. Place concrete in accordance with ACI 301 and ACI 304 as applicable. Where requirements of this Section are more stringent than those of ACI 301, the requirements herein shall take precedence.

B. No concrete shall be placed except in presence of CQA Manager or CQA Manager’s designated representative.

C. Unless adequate protection is provided and approval is obtained, concrete shall not be placed in rain, sleet, or snow. Rainwater will not be allowed to increase the mixing water.

D. Concrete placement will not be permitted when, in the opinion of the CQA Manager, the sun, heat, wind, or humidity prevents proper placement and consolidation.

E. Concrete shall be conveyed from mixer to forms as rapidly as practicable, by methods that will prevent segregation of aggregates or loss of mortar.

1. Concrete shall be delivered to the site and discharged into the forms within 90 minutes after the introduction of water to the cement and aggregates.

2. In hot weather or under other conditions contributing to quick stiffening of concrete, the time between the introduction of cement to aggregates and discharge shall not exceed 45 minutes. The CQA Manager may allow a longer time, providing the setting time of the concrete is increased a corresponding amount by the addition of an approved set-retarding mixture.
3. When temperature of the concrete is 80 degrees F or above, the time between the introduction of cement to aggregates and discharge shall not exceed 45 minutes.

4. Concrete shall be mixed and placed only when the temperature is at least 40°F and rising, unless permission to place is obtained from the CQA Manager, in which event all material shall be heated and otherwise properly prepared so that batching and mixing can proceed in full accord with the provisions of these Technical Specifications. The method proposed for heating the materials and protecting the concrete shall be approved by the CQA Manager. Salt, chemicals, or other materials shall not be mixed with the concrete for the purpose of preventing freezing.

5. Concrete temperature at the time of placing in forms shall be not less than 50°F, nor more than 85°F. In no case will concrete be accepted for use in the work if the mix temperature before placing is outside of this range.

F. Concrete shall be deposited as closely as possible to its final position in forms and shall be worked into corners and angles of forms and around all reinforcement and embedded items in a manner to prevent segregation of aggregates or excessive laitance.

G. Depositing of concrete shall be regulated so that the concrete may be consolidated with a minimum of lateral movement.

H. Elapsed Time for Placing Concrete: Concrete shall be delivered to any monolithic unit of a structure at a rate which will permit proper handling, placing, and finishing of the concrete; and shall be so regulated that the maximum interval between the placing of batches at the work site shall not exceed 20 minutes.

I. Internal stays and braces, serving temporarily to hold the forms in correct shape and alignment prior to placement of concrete at their locations, shall be removed when the concrete has been placed to an elevation such as to render their service unnecessary.

J. Placing Concrete Slabs:

1. Concrete shall be placed to design thickness in one continuous layer.

2. Deposit and consolidate concrete slabs in a continuous operation, within limits of joints, until panel or section is complete.

3. Limit time of vibrating consolidation to prevent bringing an excess of fine aggregate to surface.

4. Bring slab surfaces to correct level with straight edge and strike off.
K. Placing Concrete into Forms: Deposit concrete in forms in horizontal layers not more than 20 inches thick and in a manner to avoid inclined construction joints.

L. Successive layers shall be placed at a fast enough rate to prevent the formation of "cold joints". If surface of a layer of concrete in place sets to the degree that it will not flow and merge with the succeeding layer when vibrated, Contractor shall discontinue placing concrete and shall make a construction joint. If placing is discontinued when an incomplete layer is in place, the unfinished end of the layer shall be formed by a vertical bulkhead. Forms shall be retightened before new concrete is deposited on or against concrete that has hardened. New concrete shall not be placed until the hardened concrete has cured at least 12 hours.

M. Ensure reinforcement, inserts, embedded parts, formed joints, and adjacent areas are not disturbed during concrete placement.

3.7. CONSOLIDATION

A. Consolidate concrete, as per the requirements of the approved Concrete Placement Plan.

B. Consolidate concrete immediately after it is placed in the work with internal type mechanical vibrators capable of transmitting vibration to the concrete at frequencies not less than 6000 impulses per minute.

C. Employ sufficient number of vibrators so that, at the required rate of placement, vibration is maintained throughout the entire volume of each layer of concrete and complete consolidation is secured.

D. Location, manner and duration of application of vibrators shall be such as to secure maximum consolidation of the concrete without causing segregation of the mortar and coarse aggregate, and without causing water or cement paste to flush to the surface.

E. Vibration shall be applied in the freshly deposited concrete by inserting and removing vibrator at points uniformly spaced and not farther apart than twice the radius over which the vibration is visibly effective. The vibrator shall extend into the previously placed layer of fresh concrete, at all points, to ensure effective bond between layers.

F. Vibration shall not be applied directly to reinforcement steel or forms, or to concrete that has hardened to the degree that it does not become plastic when vibrated.

G. Use of vibrators to transport concrete in the forms or conveying equipment will not be permitted. Vibration shall be supplemented by spacing and hand tamping as necessary to ensure smooth and dense concrete along form surfaces, in corners, and around embedded items and waterstops.
3.8. CONCRETING IN COLD WEATHER

A. When the atmospheric temperature may be expected to drop below 40°F at the time concrete is delivered to the work site, during placement, or any time during the curing period, the following provisions also shall apply:

1. Protect concrete work from physical damage or reduced strength caused by frost, freezing actions, or low temperatures, in compliance with ACI 306.

2. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcement, and adjacent concrete surfaces are entirely free of frost, snow or ice before placing concrete.

3. The temperature of the concrete at the time of placing shall not be less than 50°F nor more than 85°F. The temperature of neither aggregates nor mixing water shall be more than 100°F just prior to mixing with the cement. No frozen materials or materials containing ice shall be used.

4. When the daily minimum temperature is less than 40°F, concrete structures shall be insulated or housed and heated after placement. The temperature of the concrete and air adjacent to the concrete shall be maintained at not less than 50°F nor more than 90°F for the duration of the curing period.

5. Methods of insulating, housing and heating the structure shall conform to "Recommended Practice for Cold Weather Concreting," ACI Standard 306.

6. When dry heat is used to protect concrete, means of maintaining an ambient humidity of at least 40 percent shall be provided unless the concrete has been coated with curing compound or is covered tightly with an approved impervious Concreting In material.

3.9. CONCRETING IN HOT WEATHER

A. When climatic or other conditions are such that temperature of concrete may be expected to exceed 85°F at the time of delivery at the work site, during placement, or during the first 24 hours after placement, the following provisions also shall apply:

1. Contractor shall maintain the temperature of the concrete below 85°F during mixing, conveying, and placing. Methods used shall conform to "Recommended Practice for Hot Weather Concreting," ACI Standard 305. Cool ingredients before mixing to maintain concrete temperature at time of placement. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated in total amount of mixing water.

2. The concrete shall be placed in the work immediately after mixing. Truck mixing shall be delayed until only enough time remains to accomplish it before the concrete is placed.
3. Exposed concrete surfaces which tend to dry or set too rapidly shall be continuously moistened by means of fog sprays or otherwise protected, as directed by the CQA Manager, from drying during the time between placement and finishing, and after finishing.

4. Finishing of slabs and other exposed surfaces shall be started as soon as the condition of the concrete allows and shall be completed without delay.

5. Concrete surfaces exposed to the air shall be covered as soon as the concrete has hardened sufficiently and shall be kept continuously wet for at least the first 24 hours of the curing period and for the entire curing period unless curing compound is applied.

6. Formed surfaces shall be kept completely and continuously wet for the duration of curing period (prior to, during and after form removal) or until curing compound is applied.

7. If moist curing is discontinued before the end of the curing period, curing compound shall be applied immediately, according to manufacturer’s recommendations.

3.10. CONSTRUCTION JOINTS

A. Comply with ACI 301, Chapter 6, and as specified below.

B. Locate and install construction joints at locations shown and as specified below. Contractor may submit alternate, additional, or the elimination of joint locations for Engineer’s approval.

C. Where a feather edge would be produced at a construction joint, as in the top surface of a sloping wall, an insert form shall be used so that the resulting edge thickness on either side of the joint is not less than six inches.

D. Provide keyways at least 1-1/2 inch deep in construction joints in walls, slabs and between walls and footing; bulkheads designed for this purpose may be used for slabs.

E. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.

F. Surfaces of concrete to be joined shall be clean, rough, and moist when new-cast-in-place concrete is applied. Clean joint surfaces to remove all unsatisfactory concrete, laitance, coatings, stains, or debris by washing and scrubbing with a wire brush or wire broom or by other means approved by CQA Manager.

G. Prepare surfaces of existing or hardened concrete by wet or dry sandblasting, water blasting with approved equipment, bush hammering, grinding, or other approved method. Clean surfaces by air/water jets and allow to dry thoroughly; drying may be
accomplished by air jets. Compressed air used in cleaning and drying operations shall be free from oil or other contaminating materials.

H. Joints shall be thoroughly moistened prior to placing concrete. Surfaces shall be kept moist for at least one hour prior to placement of new concrete. The new concrete shall be placed directly on the cleaned and washed surface.

I. Steel tying and form construction adjacent to concrete in place shall not be started until the concrete has cured at least 12 hours.

3.11. CONTRACTION JOINTS

A. Contraction joints shall be made only at locations shown on Plans of Proposed Improvement.

B. Comply with ACI 301, Chapter 6, and as described below.

C. Surfaces of all joints shall be cleaned thoroughly of accretions of concrete or other foreign matter by scraping, chipping or other means approved by CQA Manager.

D. Apply a waxed based curing compound or bituminous paint to old concrete surface prior to concrete placement to provide a bond breaker between concrete placements. Curing compound or bituminous paint shall not be removed, but shall remain on these joints and be kept intact until adjoining concrete is placed.

E. Waterstops and dowels shall be protected during application of bond breaking material to prevent them from being coated.

F. Exposed concrete edges at contraction joints shall be left square, chamfered or tooled, and the joints shall be free of mortar and concrete.

3.12. EXPANSION JOINTS

A. Premolded filler strips shall have oiled wood strips secured to the top thereof and shall be accurately positioned and secured against displacement to clean, smooth concrete surfaces.

B. The wood strips shall be slightly tapered, dressed and of the size required to install filler strips at the desired level below the finished concrete surface and to form the groove for the joint sealant or seals to the size shown.

C. Material used to secure premolded fillers and wood strips to concrete shall not harm the concrete and shall be compatible with the joint sealant or seals.

D. The wood strips shall not be removed until after the concrete curing period.
E. The groove shall be thoroughly cleaned of all laitance, curing compound, foreign materials, protrusions of hardened concrete and any dust which shall be blown out of the groove with oil-free compressed air.

F. Joints With Field-Molded Sealant:

1. Joints shall not be sealed when sealant, air or concrete surface temperature is less than 40 degrees F.

2. Immediately prior to installation of field molded sealants, joint shall be cleaned of all debris and further cleaned using water, chemical solvents or other means as recommended by sealant manufacturer.

3. Joints shall be dry prior to filling with sealant.

4. Bond breaker and back-up material shall be installed where required.

5. Joints shall be primed and filled flush with joint sealant in accordance with the manufacturer's recommendations.

G. Joints With Preformed Compression Seals

1. Joint seals shall be installed with equipment which shall be capable of installing joint seals to the prescribed depth without cutting, nicking, twisting, or otherwise distorting or damaging the seal and with no more than five percent stretching of the seal.

2. Sides of joint and, if necessary, sides of compression seal shall be covered with a coating of lubricant, and seal shall be installed to depth indicated with joint installation equipment.

3. Butt joints shall be coated with liberal applications of lubricant.

3.13. WATERSTOPs

A. Install waterstops in accordance with manufacturer's recommendations.

B. For waterstops in new concrete, embed approximately half of waterstop on each side of joint. Waterstops shall be carefully and correctly positioned during installation to eliminate faulty installation that may result in joint leakage. All waterstops shall be installed so as to form a continuous watertight diaphragm in each joint.

C. Support and protect waterstops during construction.

D. Any waterstop punctured or damaged shall be replaced or repaired at Contractor's expense.
E. Splice waterstops together using approved splicing procedures to form a continuous watertight diaphragm and in accordance with the following:

1. All splices shall be made on a bench in a temporary shop provided at the site of installation or at manufacturer's plant.

2. Miter guide and portable power saw shall be used to cut the ends to be joined to ensure good alignment and contact between joined surfaces. Continuity of the characteristic features of the cross section of the waterstop (ribs, tabular center axis, protrusions and the like) shall be maintained across the splice.

3. Splice PVC waterstops by heat sealing adjacent surfaces in accordance with manufacturer's recommendations. Do not expose waterstop to direct flame which could cause charring.

4. Waterstops shall be reformed at splices with a remolding iron with ribs or corrugations to match the pattern of the waterstop.

5. The spliced area, when cooled and bent by hand in as sharp an angle as possible, shall show no sign of separation.

F. The concrete shall be thoroughly consolidated in the vicinity of the waterstop.

G. Suitable guards shall be provided to protect exposed projecting edges and ends of partially embedded waterstops from damage when concrete placement has been discontinued.

H. All joints in waterstops shall be subject to inspection for misalignment, bubbles, inadequate bond, porosity, cracks, offsets, and other defects which would reduce the potential resistance of the material to water pressure at any point.

I. The following waterstop defects represent a partial list of defects which shall be grounds for rejection:

1. Offsets at joints greater than 1/16-inch or 15 percent of material thickness, at any point, whichever is less.

2. Exterior crack at joint, due to incomplete bond, which is deeper than 1/16-inch or 15 percent of material thickness, at any point, whichever is less.

3. Any combination of offset or exterior crack which will result in a net reduction in the cross section of the waterstop in excess of 1/16-inch or 15 percent of material thickness at any point, whichever is less.

4. Misalignment of joint which result in misalignment of the waterstop in excess of 1/2 inch in 10 feet.
5. Porosity in the welded joint as evidenced by visual inspection.

6. Bubbles or inadequate bonding which can be detected with a penknife test. If, while prodding the entire joint with the point of a pen knife, the knife breaks through the outer portion of the weld into a bubble, the joint shall be considered defective.

J. Rejected waterstops shall be replaced at direction of CQA Manager and at no additional cost to Owner.

3.14. JOINT SEALANT

A. Apply joint sealant to horizontal and vertical contraction joints. Comply with manufacturer’s instructions.

B. Notify Owner of contract provisions, Plans of Proposed Improvement, or approved Concrete Placement Plan directions in conflict with manufacturer’s recommendations.

C. Provide information on sealant testing.

3.15. REMOVAL OF FORMS

A. Forms shall be removed in accordance with the requirements of Section 03 10 00.

B. Form removal shall be performed sequentially such that completion of finishing operations can be accomplished within four hours of form removal.

3.16. FINISHING FORMED-surfaces

A. Concrete formed surfaces shall be true and even, and shall be free from open or rough spaces, depressions, projections, or other defects in the specified surface finish or alignment. Over tolerance depressions or projections as defined in Section 03 10 00 will not be allowed to accumulate. Finishing of formed surfaces shall be as specified below and shall be performed immediately upon removal of forms.

B. All form bolts and ties shall be removed to a depth at least one inch below surface of concrete. Cavities produced by form ties and other holes of similar size and depth shall be thoroughly cleaned and, after interior surfaces have been kept continuously wet for at least three hours, shall be carefully packed with a dry patching mortar (pre-shrunk) mixed not richer than one part cement to three parts sand.

1. Holes left by form bolts or straps which pass through the wall shall be filled solid with mortar.

2. Patching mortar shall be thoroughly compacted into place to form a dense, well-bonded unit, and the in-place mortar shall be sound and free from shrinkage cracks. Cure patched areas as specified.
C. **Unexposed Finished Surfaces**: Provide standard rough finish to formed surfaces to be concealed in finish work, by earth or rock fill, or by other construction, unless otherwise designated. Standard rough form finish shall be the concrete surface having texture imparted by form facing material. Repair defective concrete, fill form tie holes and surface depressions deeper than one inch, and remove or smooth fins and abrupt projections which exceed 1/4 inch.

D. **Exposed Finish Surfaces**: Provide standard smooth finish to formed surfaces exposed to view or surfaces that convey water. Standard smooth finish shall be the as-cast concrete surface obtained with form facing material.

1. Repair defective concrete, fill all form tie holes, remove or smooth all abrupt irregularities greater than 1/4 inch in depth or projection, and treat all depressions such that they do not exceed 1/4 inch in depth.

2. Rub concrete surfaces with a medium coarse carborundum brick or other abrasive material approved by the CQA Manager, until a uniform color and smooth texture are produced using water for lubrication and cleaning.

3. Rubbing shall be started as soon as possible but no later than the day after forms are removed, patching is finished, and the patching mortar has set thoroughly.

4. Continue rubbing until all form marks, projections and irregularities have been removed and a uniform surface has been obtained.

5. After rubbing is completed, surface shall be washed to remove loose powder and shall be left free from unsound patches, paste, powder, and objectionable marks.

E. **Related Unformed Surfaces**: At top of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off and finish with texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise shown.

### 3.17. **Finishing Unformed Surfaces**

A. Apply float finish to exposed unformed surfaces, such as slabs, following strike-off of concrete to grade.

B. Do not work surface until surface has hardened sufficiently to prevent an excess of fine material from being drawn to the surface. Begin floating when surface water has disappeared and concrete has stiffened sufficiently to permit operation of power-driven float. Excessive floating while concrete is soft will not be permitted. Consolidate surface with power-driven floats, or by hand floating using bull floats or darbies if area is small or inaccessible to power units.

C. Check and level surface plane to tolerance specified in Section 03 10 00 when tested with a straight edge. Cut high spots and fill low spots.
D. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

E. Tool joints and edges using molding tools on unformed surfaces that will be exposed to view that are not to be left square or have been chamfered.

F. All trafficked surfaces shall receive a broom finish.

G. Addition of dry cement or water to surface of unformed concrete surface to expedite finishing will not be allowed.

3.18. CURING AND PROTECTING CONCRETE

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury, as per the requirements of the approved Concrete Placement Plan.

B. All concrete shall be cured for a period of not less than seven (7) consecutive days by an approved method, or combination of methods. The curing process shall be done so as to prevent loss of moisture from the concrete for the duration of the entire curing period. Unhardened concrete shall be protected from heavy rains and flowing water. All concrete shall be adequately protected from damage.

C. Moist Curing: Concrete shall be moist cured by maintaining all surfaces continuously (not periodically) wet for the duration of the entire curing period. Water for curing shall be clean and free from any elements which will cause staining or discoloration of the concrete. Where forms of wood are used and left in place during curing, the wood shall be kept wet at all times.

D. Membrane Curing

1. At the option of Contractor and when approved by the CQA Manager, the concrete may be cured with an approved curing compound of surface membrane type in lieu of moist curing with water. The curing compound shall be applied to formed surfaces immediately after the forms have been removed and the surfaces cleaned of any loose sand, mortar and debris. The surface to receive the compound shall be moistened thoroughly with water and the compound applied as soon as the moisture film has disappeared but when the surface is still damp. On unformed surfaces, the compound shall be applied immediately after the surface loses its free water and has a dull appearance or immediately following finishing operations.

2. Membrane curing compound shall be white pigmented and meet the requirements of ASTM Designation C-309, "Liquid Membrane Forming Compounds for Curing Concrete," Type 2. Membrane curing, using spray applied curing compound, will not be allowed on any surface against which concrete will later be placed.

3. The curing compound shall be applied in a two-coat continuous operation by approved spraying equipment and at coverage of not more than two hundred (200)
square feet per gallon for both coats. The second coat shall be applied to overlap the first coat in a direction at approximately right angles to the direction of the first application. Concrete surfaces which are subjected to heavy rainfall within three (3) hours after the curing compound has been applied shall be resprayed by the method and at the coverage specified herein. All concrete surfaces, on which curing compound has been applied, shall be adequately protected for the duration of the entire curing period from any damage that would disrupt the continuity of the curing membrane.

4. All curing compound shall be delivered to the work site in the original sealed container bearing the name of the manufacturer, the brand name and the manufacturer's batch number. The compound shall be approved by the CQA Manager prior to use. The compound shall be stored so as to prevent damage to the containers, and water-emulsion types shall be protected from freezing.

3.19. NON-CONFORMING CONCRETE

Any concrete which is not formed as shown on the Plans of Proposed Improvement, or for any reason is out of alignment or level, or shows a defective surface, or shows defects which reduce the structural adequacy, shall be considered as not conforming to the intent of these Technical Specifications; and shall be removed from the job by Contractor unless the Engineer and Owner grants permission to patch the defective area. Permission to patch any such surface shall not be considered a waiver of the Owner's right to require complete removal of the defective work if the patching does not, in his opinion, satisfactorily restore the quality and appearance of the surface, or if patching does not restore the structural adequacy of the member or members. Repair work shall be performed only when the CQA Manager or his representative is present. Repair of formed surfaces shall be started within 48 hours after removal of the forms. All new concrete shall be secured with keys, dovetails, or anchors.

A. After removing forms, the CQA Manager shall inspect all concrete surfaces. Contractor shall patch any poor joints, voids, honeycomb, stone pockets, or other defective areas permitted by the CQA Manager, and all tie holes (except where noted otherwise). Where necessary, Contractor shall chip away defective areas to a depth of not less than one inch, with the edges perpendicular to the surface.

B. Contractor shall apply bonding agent to areas to be patched with care to keep bonding agent off of areas to remain exposed. Contractor shall apply bonding agent in accordance with manufacturer's printed instructions.

C. The patching mortar shall be made of the same material (and of approximately the same proportions) as used for the concrete for the same location except that the coarse aggregate shall be omitted for concealed locations. Patching mortar shall be of same composition as adjacent concrete in exposed-aggregate concrete. The mortar shall not be richer than one part cement to three parts sand. On exposed surfaces, white Portland cement shall be substituted for a part of the gray Portland
cement so as to match the color of the surrounding concrete. The proportion of white and gray cements shall be determined by making a trial patch. The amount of mixing water shall be as little as is consistent with the requirements of handling and placing. The mortar shall be retempered without the addition of water by allowing it to stand for a period of one hour, during which time it shall be mixed occasionally with a trowel to prevent setting.

D. Contractor shall compact mortar thoroughly into place, and screed off so as to leave the patch slightly higher than the surrounding surface. The patch shall be left undisturbed for a period of one to two hours to permit initial shrinkage before beginning final finishing. The patch should be finished in such a manner as to match the adjoining surface. All patches shall be finished and cured in accordance with requirements for surface in which the patch occurs. The patch shall be kept moist for not less than three days after installation.

E. Tie-holes left by withdrawal of rods, or holes left by removal of ends of ties shall be filled solidly with mortar after first being wet thoroughly. For holes passing entirely through a wall, a plunger-type grout-gun shall be used to force the mortar through the wall, starting at the back face. A piece of burlap or canvas shall be held over the hole on the outside; and when the hole is completely filled, the excess mortar shall be struck off flush with the surface. Holes not passing entirely through the walls shall be filled with a small tool that will permit packing of the hole solidly with mortar. Any excess mortar at the surface of the wall shall be struck off flush with a cloth.

3.20. Measurement and Payment

Payment for cast-in-place concrete construction shall be paid at the unit price per cubic yard of reinforced concrete construction. Field measurement will be made to determine final quantities. Payment shall include all work under this item, including, but not limited to, the cost of all labor, tools, equipment, testing, concrete, metal reinforcement, expansion joints, water stops, excavation, excavation supports, forms, backfill, handling, storage, hauling, disposing and any other requirements and sundries required for installation, complete in place.

END OF SECTION 03 30 00
TECHNICAL SPECIFICATIONS
DIVISION 03 – CONCRETE
SECTION 03 45 00 – PRECAST CONCRETE

PART 1 GENERAL

1.1. DESCRIPTION OF WORK

   A. This Specification covers the furnishing of all material, equipment, labor and plant, and performing all operations specified herein, including the manufacturing, transporting, and installing of all precast concrete.

1.2. RELATED DOCUMENTS

   A. The conditions and description of work shown in other sections of these Specifications, Plans of Proposed Improvement, and the Construction Quality Control (CQC) Plan apply to this Section.

1.3. SUMMARY

   A. Section Includes:
      1. Installation procedures for precast concrete structures
      2. Concrete mixture requirements

   B. Related Sections
      1. Division 03 – Concrete

1.4. REFERENCES

   A. In addition to complying with all pertinent codes and regulations, Contractor shall comply with all applicable provisions of the following standards.

   B. American Concrete Institute (ACI).

   C. United States Army Corps of Engineers (COE):
      1. COE CRD-C 572, "Specifications for PVC Waterstops".

   D. Iowa Department of Transportation (Iowa DOT):
1. Iowa DOT. "Standard Specifications for Road and Bridge Construction", (Current Edition)

1.5. ACTION SUBMITTALS

A. Shop (Erection) Plan:

1. Shop Plan to be provided a minimum of 10 working days ahead of fabrication or work commencing.

2. Detail fabrication and installation of architectural precast concrete units.

3. Indicate locations, plan views, elevations, dimensions, shapes, joint locations, and cross-sections of each unit.

4. Indicate aesthetic intent including joints, drips, chamfers, rustications or reveals, and extent and location of each surface finish.

5. Indicate details at corners and at light post contacts.

6. Indicate locations, tolerances, and details of anchorage devices to be embedded in or attached to structure or other construction.

7. Indicate locations, extent, and treatment of dry joints if two-stage casting is proposed.

8. Indicate plan views and elevations showing unit location and dimensions, erection sequences, and bracing plan for special conditions.

9. Indicate location of each architectural precast concrete unit by same identification mark placed on unit.

10. Indicate relationship of architectural precast concrete units to adjacent materials.

11. Indicate locations and details of clay product units, including corner units and special shapes with dimensions, and joint treatment.

12. Indicate locations and details of stone veneer-facings, stone anchors, and joint widths.

13. Provide a 12" x 12" sample cast, to compare finish and coloring to the floodwall to be inspected and approved by the Engineer and Owner.
B. Concrete Materials Statement: Submit materials and mix proportions (including admixtures) proposed for each specified class of concrete at least 30 days prior to initiation of work using that class of concrete. Statement shall include results of mix designs and laboratory tests including:

1. Concrete supplier proposed and location of plant or plants at which the concrete will be batched

2. Mix Designation and Identification

3. Mix proportions based on SSD Aggregates and one cubic yard

4. Moisture content of aggregates as used in trials and corrections for aggregate weights used

5. Specific gravity and absorption of the aggregates

6. Yield and wet unit weight

7. Strength results and unit weights of cylinders

8. Strength requirements for both the design strength and the required average strength with the applicable ASTM C-94 overdesign factor. Compressive Strength Developed at 7 Days and 28 Days from Not Less Than Three (3) Test Cylinders Cast for Each 7 Day and 28 Day Test, and for Each Design Mix.

9. Cement source, brand, type, composition and amount

10. Pozzolan source, brand, type, composition and amount

11. Aggregate source, gradation and quality

12. Admixture brand, type and dosage

13. Mix temperature

14. Slump – design and actual

15. Air Content – design and actual

16. For mixes with a high-range, water reducer present, the slump and air content at 15 to 20 minute time increments

C. Concrete Materials Statement shall be accompanied by test reports from an accredited laboratory which shows that proposed materials and proportions yield a concrete of the quality required by this Section. No substitution shall be made in the
source or type of materials used in the work without additional tests to demonstrate that the quality of the substituted materials and new concrete are satisfactory.

D. Waterstops:

1. Shop drawings showing locations, sizes, types, joint details and premolded connections.

2. Manufacturer’s product data for waterstops and for joining waterstops.

1.6. **INFORMATIONAL SUBMITTALS**

A. Material Test Reports for aggregates: From an accredited testing agency, indicating and interpreting test results for compliance with requirements indicated.

B. Material Certificates. For the following items signed by manufacturers:

1. Cementitious materials.

2. Reinforcing materials including prestressing tendons.

3. Admixtures.


5. Structural-steel shapes and hollow structural steel sections.

6. Other components specified in Contract Documents with applicable standards.

C. Field quality-control test and special inspection reports.

1.7. **QUALITY REQUIREMENTS**

A. Erector Qualifications: A precast concrete erector who has retained a "PCI-Certified Field Auditor", at erector’s expense, to conduct a field audit of a project in the same category as this Project prior to start of precast concrete erection and who can produce an Erector’s Post Audit Declaration.

B. Fabricator Qualifications: A firm that complies with the following requirements and is experienced in producing architectural precast concrete units similar to those indicated for this Project and with a record of successful in-service performance.

1. Assumes responsibility for engineering architectural precast concrete units to comply with performance requirements. This responsibility includes preparation of
Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

2. Professional Engineer Qualifications: A professional engineer who is licensed in the State of Iowa who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of architectural precast concrete that are similar to those indicated for this Project in material, design, and extent.

3. Has sufficient production capacity to produce required units without delaying the Work.

4. Certification shall be maintained throughout the production of the precast concrete units. Production shall immediately stop if at any time the fabricator's certification is revoked, regardless of the status of completion of contracted work. Production will not be allowed to re-start until the necessary corrections are made and certification has been re-established. In the event certification(s) cannot be re-established in a timely manner, causing project delays, the fabricator, at no additional cost, will contract out the remainder of the units to be manufactured at a PCI certified plant.

C. Testing Agency Qualifications: An independent accredited testing agency, qualified according to ASTM C 1077, ASTM E 329 and ASTM E 543 to conduct the testing indicated.

D. Design Standards: Comply with ACI 318 (ACI 318M) and design recommendations of PCI MNL 120, PCI Design Handbook - Precast and Prestressed Concrete, applicable to types of architectural precast concrete units indicated.

E. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 117, Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products.

1.8. DELIVERY, STORAGE, AND HANDLING

A. Deliver architectural precast concrete units in such quantities and at such times to ensure compliance with the agreed upon project schedule and setting sequence and also to limit unloading units temporarily on the ground or other rehandling.

B. Support units during shipment on non-staining shock-absorbing material.

C. Store units with adequate dunnage and bracing, and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping, or other physical damage.
D. Place stored units so identification marks are clearly visible, and units can be inspected.

E. Handle and transport units in a manner to avoid excessive stresses which could cause cracking or damage.

A. Lift and support units only at designated points indicated on Shop Drawings.

**PART 2 PRODUCTS**

2.1. **CEMENT**

A. Portland Cement: ASTM C-150, Type I or II, low-alkali containing less than 0.60 alkalis or air-entraining Portland cement: ASTM C-150, Type IA or IIA.

B. Cement used throughout the work shall be uniform in color and match the existing color of the structure.

C. Cement shall be properly stored and protected from weather, dampness or other destructive agents. Any cement which is damaged will be rejected and not permitted to be used in the work.

D. Portland cement shall be subject to sampling and testing in accordance with ASTM Designation C-150.

2.2. **POZZOLAN**

A. Comply with Section 03 30 00 Cast-in-Place Concrete.

2.3. **AGGREGATES**

A. Comply with Section 03 30 00 Cast-in-Place Concrete.

2.4. **WATER**

A. Comply with Section 03 30 00 Cast-in-Place Concrete.

2.5. **ADMIXTURES**

A. Comply with Section 03 30 00 Cast-in-Place Concrete.

2.6. **CONCRETE REINFORCEMENT**

A. Comply with Section 03 20 00 – Concrete Reinsforcing.
2.7. CONCRETE ACCESSORIES

A. Comply with Section 03 30 00 Cast-in-Place Concrete.

2.8. CONCRETE MIXES

A. Comply with Section 03 30 00 Cast-in-Place Concrete.

PART 3 EXECUTION

3.1. PREPARATION

A. Receive approval of the Erection Plan and sample cast prior to starting work. Full production should only begin upon approval of workmanship, color, and finish.

B. Furnish anchorage devices for precast concrete units to be embedded in or attached to the building structural frame or foundation before start of such Work. Provide locations, setting diagrams, templates and instructions for the proper installation of each anchorage device.

3.2. EXAMINATION

A. Examine supporting structural frame or foundation and conditions for compliance with requirements for installation tolerances, bearing surface tolerances, and other conditions affecting precast concrete performance.

B. Proceed with precast concrete installation only after unsatisfactory conditions have been corrected.

C. Contractor shall notify precast concrete erector that supporting cast-in-place concrete foundation and building structural framing has attained minimum allowable design compressive strength or supporting steel or other structure is structurally ready to receive loads from precast concrete units prior to proceeding with installation.

3.3. ERECTION

A. Install loose clips, hangers, bearing pads, and other accessories required for connecting architectural precast concrete units to supporting members and backup materials.

B. Precaster or erector to supply and install miscellaneous steel connection hardware in the field.

C. Erect architectural precast concrete level, plumb, and square within the specified allowable erection tolerances. Provide temporary supports and bracing as required to
maintain position, stability, and alignment of units until permanent connections are completed.

D. Grouting or Dry-Packing Connections and Joints: Indicate joints to be grouted and any critical grouting sequences on Shop (Erection) Drawings. Grout connections where required or indicated on Shop (Erection) Drawings. Retain flowable grout in place until it gains sufficient strength to support itself. Alternatively pack spaces with stiff dry pack grout material, tamping until voids are completely filled. Place grout and finish smooth, level, and plumb with adjacent concrete surfaces. Promptly remove grout material from exposed surfaces before it affects finishes or hardens. Keep grouted joints damp for at least 24 hours after initial set.

3.4. ERECTION TOLERANCE

A. Precast concrete is to be constructed to the tolerances as shown on the Plans of Proposed Improvement.

3.5. REPAIRS

A. Repairs will be permitted provided structural adequacy of units and appearance are not impaired.

B. Repair damaged units to meet acceptability requirements of PCI MNL 117.

C. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 20 feet.

3.6. CLEANING

A. Clean all surfaces of precast concrete to be exposed to view, as necessary, prior to shipping.

B. Clean mortar, plaster, fireproofing, weld slag, and any other deleterious material from concrete surfaces and adjacent materials immediately.

C. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, dirt, stains and other markings.

1. Perform cleaning procedures, if necessary, according to precast concrete fabricator’s recommendations. Protect adjacent work from staining or damage due to cleaning operations.

2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.
3.7. MEASUREMENT AND PAYMENT

Payment for precast concrete construction shall be paid at the unit price per linear foot of precast floodwall raise segment sta. 138+90 to 141+98. Field measurement will be made to determine final quantities. Payment shall include all work under this item, including, but not limited to, the cost of all planning, sample cast, labor, tools, equipment, testing, concrete, metal reinforcement, expansion joints, water stops, forms, handling, storage, hauling, disposing and any other requirements and sundries required for installation, complete in place.

END OF SECTION 03 45 00
TECHNICAL SPECIFICATIONS
DIVISION 03 – CONCRETE
SECTION 03 60 00 – GROUTING

PART 1 GENERAL

1.1. DESCRIPTION OF WORK

A. This Specification covers furnishing materials, equipment, labor and plant, and performing all operations specified herein, including manufacturing, transporting, placing, finishing, and curing of non-shrink cementitious grout and epoxy grout.

B. For the purpose of these Specifications, “non-shrink grout” shall be defined as a high-strength mortar or grout which does not shrink in the plastic state, is dimensionally stable in the hardened state, and bonds to a clean metal baseplate and concrete substrate.

1.2. RELATED DOCUMENTS

A. The conditions and description of work shown in other sections of these Specifications Plans for Construction apply to this Section.

1.3. SUMMARY

A. Section Includes:

1. Non-Shrink Grout: Use non-shrink cementitious grout for repair of holes and defects in concrete members; bedding and grouting of wall caps, equipment base plates, railings and machinery; embedding anchors, reinforcing bars and threaded rods, as designated on Plans for Construction.

2. Epoxy Grout: Use epoxy grout for embedding anchors and temporary supports in concrete.

B. Related Sections

1. Division 03 - Concrete

1.4. REFERENCES

A. In addition to complying with all pertinent codes and regulations, the Contractor shall comply with all applicable provisions of the following standards:
1. American Society for Testing and Materials (ASTM)

   a. ASTM C109, "Testing Method for Compressive Strength of Hydraulic Cement Mortars (using 2-in. or 50-mm Cube Specimens)".

   b. ASTM C157, "Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete".

   c. ASTM C579, "Test Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing’s and Polymer Concretes".

   d. ASTM C827, "Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures".

   e. ASTM C881, "Specification for Epoxy-Resin-Base Bonding Systems for Concrete".

   f. ASTM C1090, "Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic-Cement Grout".

   g. ASTM C1107, "Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrinkable)".

2. U.S. Army Corps of Engineers, Concrete Research Division (CRD)

   a. CRD-C620, "Standard Method of Sampling Fresh Grout".

   b. CRD-C621, "Non-Shrink Grout".

1.5. **SUBMITTALS**

A. Action Submittals:

1. Submit to the CQA Manager, ten days before any non-shrink grout is delivered to the job site, certified test results from the manufacturer showing that the commercial grout meets or exceeds the values specified in this section and all supporting data. A non-commercial grout mixture may be used provided the Contractor submits a grout mix design that meets the approval of the Engineer and the requirements of this specification.

B. Informational Submittals:

1. Submit manufacturer’s product data on grout to be incorporated into the Work.

2. Manufacturer’s Instructions: Submit manufacturer’s instructions and recommendations for mixing, handling, surface preparation, placement, curing and appropriate uses for each type of non-shrink and epoxy grout used in the Work.
3. Submit certificates of compliance or laboratory test reports which indicate materials used in the grout are free from metallic components and corrosion producing elements.

4. Materials meet specified shrinkage and compressive strength requirements.

PART 2 PRODUCTS

2.1. CEMENTITIOUS GROUT

A. Non-shrink grout shall be an inorganic, non-gas forming, non-metallic, non-shrink, non-corrosive, pre-blended and ready-to-use cement-based commercial grout requiring only the addition of water at the project site.

B. Provide non-shrink grout complying with CRD-C621 from a single manufacturer:
   1. Euclid
   2. L&M Construction Chemicals, Inc.
   3. Meadows
   4. Sika Grout
   5. Sonneborn
   6. Engineer approved equivalent

2.2. WATER

A. Water shall be clean and potable, free of impurities detrimental to grout.

2.3. CURING MATERIALS

A. Curing materials shall be as specified in Section 033000 - Cast-in-Place Concrete for cement grout and as recommended by the manufacturer for pre-packaged grouts.

2.4. EPOXY GROUT

A. Epoxy grout shall be used to embed anchor bolts designed for use with epoxy grouts, dowels, and reinforcing steel required to be set in grout, and other applications as indicated on Plans for Construction.

B. Provide epoxy grout from a single manufacturer:
   1. Hilti Hit-HY 200
2. ITW Ramset/Redhead Epcon C-6

3. Engineer approved equivalent

PART 3 EXECUTION

3.1. GENERAL

A. Non-shrink grout shall be placed rapidly and continuously at the stiffest mix suitable for flowable grout installation. In addition, the Contactor shall take care to handle the grout as little as possible during placement to avoid segregation of the grouting compound components. Contractor shall use burlap or similar materials to maintain temperatures between 45°F and 90°F on all surfaces to be grouted for 24 hours prior to and for 24 hours after grouting.

3.2. MIXING

A. Mix grout ingredients for both cementitious grout and epoxy grout in accordance with the respective manufacturer’s mixing instruction and recommendations. Mix grout materials in proper mechanical mixers.

B. If a commercial grout is used, the Contactor shall not exceed the manufacturer’s recommendations regarding maximum water content. Contactor shall ensure that the grout utilized does not contain chlorides or nitrates.

C. Mix grout as close to work area as possible.

3.3. SURFACE PREPARATION FOR NON-SHRINK GROUT

A. Concrete surfaces to receive grout shall be prepared by chipping, sandblasting, water blasting, or other accepted methods to remove defective concrete, laitance, dirt, oil, grease, and other foreign matter to achieve sound, clean concrete surfaces. Lightly roughen concrete for bond, but not enough to interfere with proper placement of grout.

B. Cover concrete areas with protective waterproof covering until ready to place grout.

C. Remove foreign matter from steel surfaces to be in contact with grout. Clean contact steel surfaces necessary by wire brushing and wiping dust clean.

D. Align and level components to be grouted, and maintain in final position until grout placement is complete and accepted.

E. Install forms for grout around the column base plates and other spaces to be grouted. The tops of such forms shall be one inch above the surfaces to be grouted.
F. Remove protective waterproof covering and clean contaminated surfaces immediately before grouting.

G. Provide air-relief holes in large baseplates and in baseplates where underneath obstructions may cause air entrapment.

H. Saturate concrete surfaces with clean water and remove excess water immediately before grouting.

3.4. PLACING CEMENTITIOUS GROUT

A. Place grout in accordance with the respective manufacturer's installation instructions and recommendations. Pour grout from one side only until grout rises at least one inch above the plate on opposite side of said plate. Strapping and plunging or other recommended method may be used to force grout to flow under the entire area.

B. Neatly trowel edges of grout base, tapered at an angle of 60 degrees when measured from the horizontal, or as indicated. Provide dry-pack cementitious grout where additional grout is required for shoulders.

C. Do not remove leveling shims for at least 48 hours after grout has been placed.

D. After shims have been removed, if used, fill voids with grout, packing the material with a suitable tool.

E. Do not use grout which has begun to set or if more than one hour has elapsed after initial mixing.

3.5. REINFORCEMENT ANCHORS USING NON-SHRINK GROUT

A. Place reinforcement anchors in accordance with Plans for Construction, approved Shop Drawings or as directed by Engineer.

B. Locate existing reinforcement in vicinity of proposed holes prior to drilling. Adjust location of holes to avoid drilling through or nicking existing reinforcement.

C. Hole diameter shall be two times the nominal bar diameter or as otherwise started on the Plans for Construction, but not less than 2 inches.

D. Depth of hole shall be as indicated on the Plans for Construction but no less than the minimum development length for the reinforcement bar.

E. Drill holes for reinforcement dowels by methods that do not interfere with proper bonding of non-shrink grout. If hole is drilled deeper than specified, dowels shall be supported in their proper location until the grout has set.
F. Holes for horizontal dowels shall be drilled at least 5 degrees (no minus tolerance allowed) below the horizontal to assist in placement of the embedment grout by limiting grout loss at top of hole.

G. On completion of drilling, thoroughly wash the hole to remove any accumulation of fines, sludge or foreign materials. Hole shall be free of dirt, mud and any material that would prevent proper anchorage.

H. Grout shall be mixed and placed in accordance with manufacturer’s recommendations. Fill hole to the top with grout by means of a pipe extending to the bottom of hole, and then insert dowel in hole. Dowels shall be wedged with steel wedges so they will not move.

I. After installation, dowels shall not be moved or disturbed until the grout has achieved initial set. If any dowel is disturbed so that anchorage is adversely affected, the dowel shall be removed, the hole cleaned and a new dowel installed at no additional cost to Owner.

3.6. **REINFORCEMENT ANCHORS USING EPOXY GROUT**

A. Place reinforcement anchors in accordance with Plans for Construction, approved Shop Drawings or as directed by Engineer.

B. Locate existing reinforcement in vicinity of proposed holes prior to drilling. Adjust location of holes to avoid drilling through or nicking existing reinforcement.

C. Hole diameter shall be as recommended by epoxy manufacturer but shall be no larger than 0.25 inches greater than diameter of outer surface of reinforcing bar deformations.

D. Depth of hole shall be as recommended by epoxy manufacturer to fully develop bar, but shall not be less than 12 bar diameters, unless noted otherwise on the Plans for Construction.

E. Drill holes for reinforcement dowels by methods that do not interfere with proper bonding of epoxy grout. If hole is drilled deeper than specified, dowels shall be supported in their proper location until the grout has set.

F. Blow clean the hole with clean, dry compressed air to remove dust and loose particles. Hole shall be free of dirt, mud and any material that would prevent proper anchorage.

G. Inject epoxy grout into hole through a tube placed to bottom of hole. Withdraw tube as epoxy grout is placed but kept immersed to prevent formation of air pockets. Fill hole to a depth that ensures excess material will be expelled from hole during dowel placement.
H. Twist dowels during insertion into the partially filled hole to ensure full wetting of bar surface with epoxy. Insert bar slowly enough to avoid developing air pockets.

I. Remove excess epoxy grout from concrete and reinforcement dowel to provide adequate bond to new concrete.

3.7. **Curing**

A. Cementitious grout shall be cured the same as specified for cast-in-place concrete in Section 03 30 00.

B. Epoxy grout shall be cured as recommended by grout manufacturer.

3.8. **Quality Control**

A. Testing will be performed by the CQA Manager approved testing service.

B. Inspection and Tests: Perform visual inspections and shrinkage tests using an appropriate independent testing laboratory, and strength tests as necessary to verify performance requirements of grout. Sampling and testing of grout shall conform to applicable ASTM or CRD-C620 requirements.

C. Visual Inspections: Perform visual inspection of the grout mixing and placement to determine and verify that grout consistency, slump, and stiffness are appropriate and proper for the location and type of installation.

D. Shrinkage Tests

1. Cementitious Grout shall meet the following requirements:
   
   a. Expansion: 0.4 percent maximum at 3, 14, and 28 days. Grout shall exhibit no displacement when tested in accordance with ASTM C157.

   b. Shrinkage: None (0.00 shrinkage at 28 days when tested in accordance with ASTM C827 and ASTM C1090). There shall be no vertical volume shrinkage of grout in the plastic or hardened stage at any time.

2. Epoxy Grout shall meet the following requirement:

   a. Expansion: Grout shall exhibit no displacement when tested in accordance with ASTM C827 and ASTM C157, modified procedures.

   b. Shrinkage: None (0.00 shrinkage when tested in accordance with ASTM C827, modified procedure; specific gravity of indicator ball will be changed to approximately 1.0).

   c. Effective Bearing Area: 95 percent minimum coverage of the tested base plate.
E. Strength Tests

1. Cementitious Grout shall have a minimum compressive strength of 5,000 psi at 28 days when tested in accordance with ASTM C109.

2. Epoxy Grout shall have a minimum compressive strength of 10,000 psi at 7 days when tested in accordance with ASTM C579.

3.9. Measurement and Payment

A. Grouting is incidental to cast-in-place or pre-cast concrete construction.

END OF SECTION 03 60 00
TECHNICAL SPECIFICATIONS

DIVISION 35 – WATERWAY / MARINE CONSTRUCTION
SECTION 35 20 14 – CAST-IN-PLACE CONCRETE FOR STOPLOG CLOSURE STRUCTURES

PART 1 GENERAL

1.1. DESCRIPTION OF WORK

A. This Specification covers the furnishing of all material, equipment, labor and plant, and performing all operations specified herein, including the manufacturing, transporting, and placing stoplog structures.

1.2. RELATED DOCUMENTS

A. The conditions and description of work shown in other sections of these Specifications, Plans of Proposed Improvement, and the Construction Quality Control (CQC) Plan apply to this Section.

1.3. REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

B. American Concrete Institute (ACI):


C. ASTM INTERNATIONAL (ASTM):


D. AMERICAN WELDING SOCIETY (AWS):


1.4. SUBMITTALS

A. Submit the following in accordance with the contract documents:

1. Shop Drawings – Fabrication and construction details. Submittal shall be provided for review a minimum of 10 working days prior to fabrication.

2. Product Data – Material mill reports

3. Welding materials and procedures

4. Identification System

5. Test Reports, Inspections and Verifications

1.5. QUALIFICATION OF WELDERS AND WELDING OPERATORS

A. Qualification of welders and welding operators shall conform to the requirements of The American Welding Society (AWS) D1.2 Structural Welding Code – Aluminum or D1.6 Structural Welding Code – Stainless Steel respectively.

1.6. DELIVERY, STORAGE, AND HANDLING

A. Delivery, handling and storage of materials and fabricated items shall conform to the requirements specified herein.

1. Rubber Seals: Store rubber seals in a place which permits free circulation of air, maintains a temperature of 20 degrees C (70 degrees F or less), and prevents the rubber from being exposed to the direct rays of the sun. Rubber seals shall be kept...
free of oils, grease, and other materials which would deteriorate the rubber. Rubber seals shall not be distorted during handling.

2. Identification System: Submit an Identification System which shows the disposition of specific lots of approved materials and fabricated items in the work, before completion of the contract.

PART 2 PRODUCTS

2.1. MATERIALS

A. Metals

1. Structural aluminum, stainless steel, and other metal materials sections and standard articles shall be as shown on the plans and as specified herein. Cement used throughout the work shall be uniform in color and shall match existing adjacent concrete.

2. Structural aluminum shall conform to ASTM B221, ASTM B308 Alloy 6061, Temper T6 as indicated on the plans.

3. Stainless steel sections shall be Type 304L and conform to ASTM A240, ASTM A666, and AMS 5511. Stainless steel fasteners shall be Type 304L and conform to ASTM A193.

B. Rubber Seals

1. Rubber seals shall be fluorocarbon (Teflon) clad rubber seals of the mold type only, shall be compounded of natural rubber, synthetic polyisoprene, or a blend of both, and shall contain reinforcing carbon black, zinc oxide, accelerators, antioxidants, vulcanizing agents, and plasticizers. Physical characteristics of the seals shall meet the following requirements:

<table>
<thead>
<tr>
<th>PHYSICAL TEST</th>
<th>TEST VALUE</th>
<th>TEST METHOD SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>17.2 MPa2,500 psi (min.)</td>
<td>ASTM D412</td>
</tr>
<tr>
<td>Elongation at Break</td>
<td>450 percent (min.)</td>
<td>ASTM D412</td>
</tr>
<tr>
<td>300 percent Modulus</td>
<td>6.2 MPa900 psi (min.)</td>
<td>ASTM D412</td>
</tr>
<tr>
<td>Durometer Hardness (Shore Type A)</td>
<td>60 to 70</td>
<td>ASTM D2240</td>
</tr>
<tr>
<td>*Water Absorption</td>
<td>5 percent by weight (max.)</td>
<td>ASTM D471</td>
</tr>
<tr>
<td>Compression Set</td>
<td>30 percent (max.)</td>
<td>ASTM D395</td>
</tr>
</tbody>
</table>
2. The "Water Absorption" test shall be performed with distilled water. The washed specimen shall be blotted dry with filter paper or other absorbent material and suspended by means of small glass rods in the oven at a temperature of 70 degrees plus/minus 2 degrees C for 22 plus/minus 1/4 hour. The specimen shall be removed, allowed to cool to room temperature in air, and weighed. The weight shall be recorded to the nearest 1 mg as W1 (W1 is defined in ASTM D471). The immersion temperature shall be 70 degrees plus/minus 1-degree C and the duration of immersion shall be 166 hours.

3. Rubber seals shall have a fluorocarbon film vulcanized and bonded to the sealing surface of the bulb. The film shall be 0.030-inch-thick Huntington Abrasion Resistant Fluorocarbon Film No. 4508, or equal, and shall have the following physical properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength</td>
<td>13.8 MPa2,000 psi (min.)</td>
</tr>
<tr>
<td>Elongation</td>
<td>250 percent (min.)</td>
</tr>
</tbody>
</table>

The outside surface of the bonded film shall be flush with the surface of the rubber seal and shall be free of adhering or bonded rubber. Strips and corner seals shall be molded in lengths suitable for obtaining the finish lengths shown and with sufficient excess length to provide test specimens for testing the adequacy of the adhesion bond between the film and bulb of the seal. At one end of each strip or corner seal to be tested, the fluorocarbon film shall be masked during bonding to prevent a bond for a length sufficient to hold the film securely during testing.

2.2. MANUFACTURED UNITS

A. Bolts, nuts, washers, screws and other manufactured units shall conform to the requirements specified.

B. Bolts. Nuts and Washers

1. All connections shall conform to the requirements of AWS D1.2 and AWS D1.6 for aluminum and stainless steel respectively. Bolts 1/2 inch and larger shall have hexagon heads. The shank of bolts shall be fully threaded. Washers for use with bolts shall conform to the requirements specified in the applicable specification for bolts.

C. Screws shall be of the type indicated.
2.3. **FABRICATION**

A. Detail drawings of stoplogs and appurtenant shop fabricated items, including fabrication drawings, shop assembly drawings, delivery drawings, and field installation drawings, shall conform to the requirements specified.

B. Show on the fabrication drawings complete details of materials, tolerances, connections, and proposed welding sequences which clearly differentiate shop welds and field welds.

C. Show on the shop assembly drawings details for connecting the adjoining fabricated components in the shop to assure satisfactory field installation.

D. Show on the delivery drawings descriptions of methods of delivering components to the site, including details for supporting fabricated components during shipping to prevent distortion or other damages.

E. Show on the field installation drawings a detailed description of the field installation procedures. The description shall include the location and method of support of installation and handling equipment; provisions to be taken to protect concrete and other work during installation; method of maintaining components in correct alignment; and methods for installing appurtenant items.

F. Structural fabrication shall conform to the requirements specified.

G. Submit schedules of welding procedures for welding processes for aluminum and stainless steel. Welding shall conform to the requirements specified in AWS D1.2 or AWS D1.6 for aluminum and stainless steel respectively.

H. Bolted connections shall conform to the requirements specified.

I. Machine work shall conform to the requirements specified in Section 2.4.

2.4. **STRUCTURAL METAL FABRICATIONS**

A. Miscellaneous provisions for fabrication shall conform to the requirements specified.

B. Stoplogs shall be fabricated of extruded aluminum conforming to ASTM B221, ASTM B308 Alloy 6061, Temper T6 as indicated on the plans.

C. Stoplog channels/guides and down pressure plates shall be fabricated of stainless steel, Type 304L conforming to ASTM A240, ASTM A666, and AMS 5511.

D. Corner protection angles, frames, base plates, and other embedded metal items required for complete installation shall conform to the details shown.
E. Seal assemblies shall consist of rubber seals attached to stoplogs and stoplog channels/guides according to the details shown. Rubber seals shall be continuous over the full length. Seals shall be accurately fitted and drilled for proper installation. Screw holes shall be drilled in the rubber seals by using prepared templates. Splices in seals is prohibited.

2.5. TEST, INSPECTIONS, AND VERIFICATIONS

A. Tests, inspections, and verifications for materials shall conform to the requirements specified in AWS D1.2 and AWS D1.6 as applicable. Submit certified test reports for material tests, with all materials delivered to the site.

B. The fluorocarbon film of rubber seals shall be tested for adhesion bond in accordance with ASTM D413 using either the machine method or the deadweight method. A 1-inch long piece of seal shall be cut from the end of the seal which has been masked and subjected to tension at an angle approximately 90 degrees to the rubber surface. There shall be no separation between the fluorocarbon film and the rubber when subjected to the following loads:

<table>
<thead>
<tr>
<th>THICKNESS OF FLUOROCARBON FILM</th>
<th>MACHINE METHOD AT 50 MM2 INCHES PER MINUTE</th>
<th>DEADWEIGHT METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.762 mm0.030 inch</td>
<td>13.6 kg per 25 mm3 pounds per inch width</td>
<td>13.6 kg per 25 mm30 pounds per inch width</td>
</tr>
<tr>
<td>1.524 mm0.060 inch</td>
<td>13.6 kg per 25 mm3 pounds</td>
<td>13.6 kg per 25 mm30 pounds</td>
</tr>
</tbody>
</table>

C. Failure of any specimen to meet the requirements of the test used will be cause for rejection of the piece from which the test specimen was taken.

PART 3 EXECUTION

3.1. INSTALLATION

A. Installation shall conform to the requirements specified.

B. Embedded Metals

1. Corner protection angles, frames, base plates, and other embedded metal items required for complete installation shall be accurately installed to the alignment and grade required to ensure accurate fitting and matching of components. Embedded metals shall be given a primer coat of the required paint on all surfaces prior to installation in concrete forms. Anchors for embedded metals shall be installed as shown. Items requiring two concrete pours for installation shall be attached to the embedded anchors after the initial pour, adjusted to the proper alignment, and concreted in place with the second pour.
C. Seal Assemblies

1. Rubber seal assemblies shall be installed after the embedded metal components have been concreted in place. Rubber seals shall be fastened securely.

3.2. Acceptance Trial Operation

After completion of installation, the Engineer will examine the stoplog installation for final acceptance. The individual components of the stoplog installation will be examined first to determine whether or not the workmanship conforms to the specification requirements. The Contractor will be required to place the stoplogs in the channels/guides a sufficient number of times to demonstrate that the stoplogs fit properly and seat uniformly. Required repairs or replacements to correct defects, shall be made at no cost. The trial operation shall be repeated after defects are corrected.

3.3. Measurement and Payment

Payment for stoplogs shall be paid at the unit price for the set of stoplogs for each structure. Payment shall include all work under this item, including, but not limited to, the cost of all labor, tools, equipment, testing, handling, storage, hauling, disposing and any other requirements and sundries required for fabrication and installation, complete in place.

END OF SECTION 35 20 14
This project will be constructed in accordance with the SUDAS Standard Specifications, 2019 Edition, which were adopted by the City of Des Moines on April 22, 2019, under Roll Call No. 19-0621, as amended by these City of Des Moines General Supplemental Specifications.

The SUDAS Standard Specifications, 2019 Edition, may be viewed at the Iowa SUDAS website https://iowasudas.org/manuals/specifications-manual/, or can be purchased online from the Iowa SUDAS website at: https://iowasudas.org/order-the-manuals/.

Said SUDAS Standard Specifications are hereby amended as follows:

SECTION 1010 – DEFINITIONS

1010, 1.03 DEFINITIONS AND TERMS. Add the following new definition:

PRIVATE CONSTRUCTION CONTRACT. A contract awarded by a private agency or individual for construction of a publicly owned or privately-owned improvement, which by agreement of the parties is subject to these specifications.

SECTION 1020 – PROPOSAL REQUIREMENTS AND CONDITIONS

1020, 1.01 QUALIFICATION OF THE BIDDERS: Add the following new E.

*E. The City of Des Moines may disqualify a Contractor from bidding on future work or from participating as a subcontractor for a period of up to 3 years in accordance with Section 94-198 of the Municipal Code of the City of Des Moines.

1020, 1.03 QUANTITIES AND UNIT PRICES: Delete B. and replace with the following new B.

B. When unit prices are requested in the proposal form, the quantities indicated on the proposal form are approximate only, and do not constitute a warranty or guarantee by the Jurisdiction as to the actual quantities involved in the work. Such quantities are to be used for the purpose of comparison of bids and determining the amount of bid security, contract, and performance, payment, and maintenance bond. In the event of discrepancies between unit prices and unit price extensions listed in a bidder’s proposal, unit prices shall govern and unit price extensions shall be corrected, as necessary, for agreement with unit prices; except in the case of an obvious, serious, clerical error where the Engineer is able to determine the bidder’s intent from the proposal; in which case, the Jurisdiction may waive irregularities that are in best interest of the Jurisdiction, as long as the integrity of the bid process can be maintained. The Jurisdiction expressly reserves the right to increase or decrease the quantities during construction as outlined in Section 1040, 1.06 - Increase or Decrease of Work, and to make reasonable changes in design, provided such changes do not materially change the intent of the contract. The amount of work to be paid for shall be based upon the actual quantities performed.

*This highlighted language and Section 94-198 of the Municipal Code of the City of Des Moines are not the current law of the State of Iowa and not applicable to the City's current bidding process.
1020, 1.09 PREPARATION OF THE PROPOSAL:  Delete D. and replace with the following D:

D. When unit prices are requested, they shall be submitted on each and every item of work included for which bids are requested. The format for unit prices will be in dollars and whole cents only. In the case of discrepancy, the unit price shall govern; except in the case of an obvious, serious, clerical error where the Engineer is able to determine the bidder’s intent from the proposal; in which case, the Jurisdiction may waive irregularities that are in best interest of the Jurisdiction, as long as the integrity of the bid process can be maintained.

1020, 1.15 LIMITATION ON WITHDRAWAL OF PROPOSALS AFTER OPENING OF PROPOSALS:
Add the following new C:

C. After bids are opened, if the low bidder claims that it has made a serious error in the preparation of its bid, and can support such a claim with evidence satisfactory to the Jurisdiction, said bidder shall be allowed to withdraw its bid and its bid security shall be returned; *provided however, as a condition for return of its bid security, said bidder shall be required to agree that it will not be allowed to again bid on the project, either as a prime bidder or as a subcontractor, if the project, or a substantial portion of the project, is rebid within six months of the first bid opening. Under no circumstances should said bidder be permitted to alter or adjust its bid, as this would undermine the entire system of competitive bidding and be an open invitation to abuse.

SECTION 1040 – SCOPE OF WORK

1040, 1.05 PLANS: Delete the 2nd paragraph and replace with the following:

Electronic support files, will not be provided prior to letting and may be provided to the low bidder and are for information only. Should there be a discrepancy between an electronic support file and a contract document, the contract documents shall govern. No guarantee is made that the data systems used by the Engineer will be directly compatible with the systems the Contractor uses.

1040, 1.07 CHANGE ORDERS, B. Written Orders: Add the following to the end of the section:

Formal approval by the Jurisdiction shall be defined as follows:
The authority of the Des Moines City Manager and the Engineer to approve change orders shall be limited to those change orders which will cost $50,000 or less. Change orders for work to cost more than $50,000 shall be approved by the City Council prior to the payment of the work provided for under the change order.

*This highlighted language is not the current law of the State of Iowa and not applicable to the City’s current bidding process.

1040, 1.09 CHANGED SITE CONDITIONS, A. Latent or Subsurface Conditions: Delete 1. and 2. in their entirety and replace with the following 1. and 2.; and add the following new 3.

1. If the Contractor encounters latent or subsurface conditions differing materially from those indicated in the contract documents which the Contractor could not have discovered by a reasonable site investigation and examination of the type customarily undertaken by prudent and competent contractors, and if these changed conditions are considered by the Contractor as a basis for compensation in addition to the contract price, the Contractor shall within three working days after discovery thereof notify the Engineer of its claim by written notice as sent forth herein. Before disturbing the site at which the latent or subsurface condition is alleged to exist, the Contractor shall give the Engineer the opportunity to inspect the same.
a. For claims greater than $50,000 the Contractor shall notify the Engineer by written notice either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested), to the address below:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: Steve Naber, P.E., City Engineer

Under no circumstance will an email, text message, verbal communication or any other informal communication, be considered acceptable or satisfactory written notice required by this section. The written notice shall:

1) Expressly state that it is a request for a contract change under Section 1040, 1.09;
2) Expressly identify the latent or subsurface conditions that the Contractor alleges differ materially from those indicated in the contract documents which the Contractor could not have discovered by a reasonable site investigation and examination of the type customarily undertaken by prudent and competent contractors;
3) Expressly state the reason the Contractor believes extra compensation is due;
4) Identify work that Contractor alleges will be impacted.

b. For claims less than $50,000 the Contractor shall notify the Project Engineer by written notice sent as set forth above or sent by email providing the same detail as identified in a.1) through 4) above. Under no circumstances will a text message, verbal communication or any other informal communication be considered acceptable or satisfactory written notice required by this section.

2. After inspection by the Engineer, the Jurisdiction may, in its discretion, authorize the Contractor to proceed with or abandon the work. The Contractor shall resume construction operations pending a decision regarding its claim by the Jurisdiction. Failure of the Contractor to give written notice within three working days of discovering the conditions and to give the Engineer full opportunity to inspect the condition before disturbing the site shall be deemed a waiver by the Contractor of all claims for extra compensation arising out of the alleged condition.

3. Latent or subsurface conditions that do not materially differ from those shown on the plans shall not form the basis for additional compensation. No additional compensation or extension of time shall be provided for conditions that do not materially differ, regardless of the nature of the condition encountered.

1040, 1.10 DISPUTED CLAIMS FOR EXTRA COMPENSATION: Delete 1.10 in its entirety and replace with the following:

A. Basis of Claim for Extra Compensation:

1. In any case where the Contractor believes extra compensation is due for work or material beyond the scope of the Work under the contract and not ordered by the Engineer as Extra Work as defined in Section 1010, 1.03, the Contractor shall provide written notice to the Engineer, as set forth herein, of its intention to make claim for such extra compensation within thirty (30) days of discovering the circumstances regarding the claim and before beginning the work on which the claim is based (hereinafter referred to as a “Claim”).

a. For claims greater than $50,000 the Contractor shall notify the Engineer by written notice either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii)
delivered by a nationally recognized prepaid overnight courier service (receipt requested)
to the address below:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA  50309-1891
Attention:  Steve Naber, P.E., City Engineer

Under no circumstance will an email, text message, verbal communication or any other
informal communication, be considered acceptable or satisfactory written notice
required by this section. The written notice shall:

1)  Expressly state that it is a request for a contract change under Section 1040, 1.10;
2)  Expressly state the reason the Contractor believes extra compensation is due;
3)  Identify the underlying work or material that Contractor claims is beyond the
    scope of the Work under the contract and not ordered by the Engineer as Extra
    Work as defined in Section 1010, 1.03;
4)  Identify any work that will be impacted.

b.  For claims less than $50,000 the Contractor shall notify the Project Engineer by
    written notice sent as set forth above or sent by email providing the same detail as
    identified in a.1) through 4) above. Under no circumstances will a text message,
    verbal communication or any other informal communication be considered acceptable
    or satisfactory written notice required by this section.

The Contractor shall not proceed with that work until the Contractor and the Jurisdiction have
executed a change order with respect to the Claim. The Contractor shall have no right to
submit a Claim for any matter which is exclusively reserved to authority of the Engineer
under the Contract Documents.

2.  The Jurisdiction shall not be responsible for damages attributable to the performance,
    nonperformance, or delay, of any other contractor, governmental agency, utility agency, firm,
    corporation, or individual authorized to do work on the project, except if such damages result
    from negligence on the part of the Jurisdiction, its Engineer, or any of its officers or
    employees.

3.  For any Claim, if such written notification is not given, or if after such written notification is
given the Engineer is not allowed facilities for keeping strict account of actual costs as
defined for force-account construction, the Contractor thereby agrees to waive the Claim for
extra compensation for such work. Such written notice by the Contractor, and the fact the
Engineer has kept account of the cost as aforesaid, shall not be construed as establishing the
validity of the Claim.

4.  The Claim, when filed, shall be in writing and in sufficient detail to permit auditing and an
evaluation by the Jurisdiction. The Claim shall be supported by such documentary evidence
as the Contractor has available and shall be verified by affidavit of the Contractor or other
person having knowledge of the facts.

B.  Presentation and Consideration of Claim: If the Contractor wishes an opportunity to present
its Claim in person, the Claim shall be accompanied by a written request to do so. Where the
Contractor asks an opportunity to present its Claim in person, the Jurisdiction, within thirty (30)
calendar days of the filing of the Claim, shall fix a time and place for a meeting between the
Contractor and the Jurisdiction or its designated representatives or representative. The
Jurisdiction shall, within a reasonable time after the filing of the Claim or the meeting above
referred to, whichever is later, rule upon the validity of the Claim and notify the Contractor, in
writing, of its ruling together with the reasons therefore. 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.
C. **Request for Claim Review**: In the event a Contractor’s Claim as outlined in the above procedure in Sections 1040, 1.10(A) and (B) has been disallowed, in whole or in part, the Contractor may, within thirty (30) calendar days from the date the ruling of the Jurisdiction is mailed, make a written request to the Jurisdiction that its Claim or Claims be submitted to a board of review. The written request shall be either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) addressed as follows:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: City Engineer

The Jurisdiction shall decide if the matter is subject to further review and shall, within thirty (30) calendar days of the receipt of the request for review, grant or deny the request for review. The Jurisdiction’s decision shall be final. In the event the Contractor fails to make a timely written demand for review of its Claim as provided by this Section 1040, 1.10(C), the decision of the Jurisdiction shall be deemed to be final and the Contractor shall have no right to pursue arbitration or litigation of its Claim.

D. **Board of Review**:

1. The Board 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 that have not been allowed by the Jurisdiction. The Board’s jurisdiction shall not extend to matters exclusively reserved to the Engineer, to 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. Jurisdiction of the Board shall not extend to setting aside or modifying the terms or requirements of the contract.

2. Following the timely written demand for review of the Claim and the decision of the Jurisdiction to grant the request, a board of review shall be appointed to review the Claim. The board of review shall consist of three (3) members as follows: the Engineer, or designated representative; and two persons to be appointed by the Engineer (hereinafter the “Board”).

3. The Board shall set a date for the Contactor to present its Claim for review within sixty (60) days of the date the Jurisdiction issued its decision granting the Contractor’s request for review. The presentation before the Board shall not be in accordance with the Iowa rules of civil procedure and the Contractor shall not have the right to conduct discovery or compel the testimony of witnesses as part of the presentation. The Contractor shall submit three (3) copies of a written Claim summary and all documents it considers to be relevant to its Claim at least fourteen (14) days prior to the date set for the presentation before the Board. The presentation before the Board is intended to be an informal process to allow the Contractor to further explain its Claim and why it believes it is entitled to additional compensation. The Board reserves the right to impose such rules as it deems reasonably necessary to allow for a fair and efficient presentation.

4. Following the presentation before the Board, the Board shall render a written decision regarding the Claim within ten (10) days of the presentation. In the event the Board renders a decision in favor of the Contractor for some or all of the Claim, the Contractor and the Jurisdiction shall promptly proceed in good faith to prepare a change order consistent with the decision of the Board. If the Board denies the Claim, in part or in full, the Contractor’s sole and exclusive remedy is to demand final resolution of the Claim that has been denied subject to the procedure provided below.
E. Final Resolution by Binding Arbitration or Litigation: For any Claim denied by the Board, the Jurisdiction shall have the sole and exclusive right to determine whether final resolution of the Claim shall be through Binding Arbitration or litigation. The Contractor shall not have the right to pursue final resolution of any Claim that the Contractor did not submit to the Board. The Contractor must make a written demand for final resolution of the Claim upon the Jurisdiction within thirty (30) days of the date when the Board rendered its decision or it will be deemed to have waived this right and the decision of the Board will be final. The written demand shall be either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) addressed as follows:

City of Des Moines  
Engineering Department  
400 Robert D. Ray Drive  
Des Moines, IA 50309-1891  
Attention: Steve Naber, P.E., City Engineer

The Jurisdiction shall notify the Contractor within thirty (30) days of the date of receiving the Contractor’s written demand for final resolution of the Claim, whether the Jurisdiction will elect to use binding arbitration or litigation to reach a final resolution of the Claim. The decision to pursue binding arbitration or litigation, shall be the sole and exclusive decision of the Jurisdiction. The decision of the Jurisdiction on whether to pursue binding arbitration or litigation is final.

1. Arbitration.

   (a) If the Jurisdiction elects to use binding arbitration for final resolution of the Claim, the sole and exclusive remedy for final resolution of the Claim shall be binding arbitration (the “Arbitration”). The Arbitration shall be submitted to a single arbitrator as is mutually agreed upon by the Contractor and Jurisdiction. If the Contractor and Jurisdiction cannot agree upon a single arbitrator within twenty-one (21) days of the date of the Jurisdiction’s notification to the Contractor of the Jurisdiction’s decision to pursue binding arbitration, the Arbitration shall be submitted to a three (3) member panel appointed as follows: the Contractor shall appoint one arbitrator; the Jurisdiction shall appoint one arbitrator; and the third arbitrator shall be chosen by the first two appointed arbitrators (for the sake of convenience, the arbitrator, or arbitrators as the case may be, shall be referred to hereinafter as the “Arbitrator”). The parties agree to work toward appointment of a three (3) member Arbitration panel within twenty-one (21) days after not being able to agree on a single arbitrator. The Arbitration shall be conducted in general accord with the Construction Industry Arbitration Rules of the American Arbitration Association then in effect. The parties reserve the right to alter and amend the rules for the Arbitration as they may mutually agree in writing.

   (b) The Arbitrator 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 that have not been allowed by the Jurisdiction. The Arbitrator’s jurisdiction shall not extend to matters exclusively reserved to the Engineer, to 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. Jurisdiction of the Arbitrator shall not extend to setting aside or modifying the terms or requirements of the contract.

   (c) Subject to agreement of the parties and the Arbitrator, the parties shall work in good faith to schedule the Arbitration and allow for the decision of the Arbitrator within two hundred forty (240) days after appointment of the Arbitrator.
(d) The Arbitrator shall render a written decision within twenty (20) days after the Claim has been fully submitted. For Arbitrations before more than one arbitrator, the decision of a majority of the panel shall govern. The Arbitrator’s decision shall provide a basis for the findings and legal conclusions and shall determine how the cost of the proceedings shall be borne by the parties.

(e) The decision of the Arbitrator shall be binding and final. There shall be no further appeal or judicial review, except under the limited circumstances as allowed by Iowa law.

2. Litigation. If the Jurisdiction elects not to use arbitration as the means to reach final resolution of the claim, then the sole and exclusive remedy for final resolution of the Claim shall be litigation which must be brought in Iowa District Court in and for the County where the Jurisdiction is located or in the United Stated District Court in and for the District where the Jurisdiction is located.

SECTION 1050 – CONTROL OF WORK

1050, 1.10 PROTECTION OF LINE AND GRADE STAKES: Add the following new D.

D. The Jurisdiction shall provide all construction survey staking on projects funded by the Jurisdiction unless otherwise indicated on the plans or in the Contract Documents. On Private Construction Contracts, the Owner, in accordance with the Private Construction Contract, shall hire a Licensed Surveyor for all survey work.

SECTION 1060 – CONTROL OF MATERIALS

1060, 1.03 SAMPLES AND TESTING: Add the following new D.

D. All on-site inspection and testing, as well as testing of materials, will be provided by the Jurisdiction unless otherwise indicated on the plans or by special provisions.

SECTION 1070 – LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

1070, 1.03 PERMITS AND LICENSES: Delete and replace with the following:

The Contractor shall procure and pay for all necessary permits and licenses for the construction of the work and for temporary excavations, obstructions, enclosures, and street openings arising from the construction and completion of the work described in the Contract Documents. The Contractor shall be responsible for all violations of the law for any cause in connection with the construction of the work or caused by the obstruction of roads, streets, highways or sidewalks, and shall give all requisite notices to the Jurisdiction or other public authorities in connection therewith.

1070, 2.02 CONVENIENCE AND SAFETY: E. Project Area or Work Site Safety: Add the following new 6.

6. The City of Des Moines, Engineering Department, Master Construction Safety Packet is available at http://www.dmgov.org/Departments/Engineering/PDF/MasterConstructionSafetyPacket.pdf and is also available upon request from the Engineering Department. The Engineering Department will make available a copy of the City of Des Moines Master Construction Safety Plan to the Contractor when the contract is awarded. Said Safety Plan is for the Contractor’s information only and it is the Contractor’s sole responsibility to provide, or make available, this safety information to all its Subcontractors.
1070, 1.12, CONSENT TO JURISDICTION OF IOWA DISTRICT COURT OR FEDERAL DISTRICT COURT: Delete 1.12 in its entirety and replace with the following new 1.12:

1070, 1.12 DISPUTE RESOLUTION AND CONSENT TO JURISDICTION OF IOWA DISTRICT COURT OR FEDERAL DISTRICT COURT IN IOWA

A. The Contractor agrees any claims, disputes, causes of action that accrue to it, or which by subrogation or assignment accrue to its sureties or insurers, arising out of or connected with this contract, and that the Jurisdiction has determined in writing is not subject to Section 1040, 1.10, shall be resolved by arbitration or litigation as elected by the Jurisdiction. As to any such causes of action, Contractor shall provide written notice to Jurisdiction requesting that Jurisdiction make its election as to whether the dispute shall be settled by arbitration or litigation. The written notice shall be either (i) personally delivered, (ii) sent by certified mail, return receipt requested, or (iii) delivered by a nationally recognized prepaid overnight courier service (receipt requested) addressed as follows:

City of Des Moines
Engineering Department
400 Robert D. Ray Drive
Des Moines, IA 50309-1891
Attention: Steve Naber, P.E., City Engineer

Jurisdiction shall notify Contractor in writing as to its election within thirty (30) days of receipt of Contractor’s written notice requesting a determination by Jurisdiction.

1. Arbitration

(a) If the Jurisdiction elects to use binding arbitration for final resolution, the sole and exclusive remedy for final resolution of the dispute shall be binding arbitration (the “Arbitration”). The Arbitration shall be submitted to a single arbitrator as is mutually agreed upon by the Contractor and Jurisdiction. If the Contractor and Jurisdiction cannot agree upon a single arbitrator within twenty-one (21) days of the date of the Jurisdiction’s notification to the Contractor of the Jurisdiction’s decision to pursue binding arbitration, the Arbitration shall be submitted to a three (3) member panel appointed as follows: the Contractor shall appoint one arbitrator; the Jurisdiction shall appoint one arbitrator; and the third arbitrator shall be chosen by the first two appointed arbitrators (for the sake of convenience, the arbitrator, or arbitrators as the case may be, shall be referred to hereinafter as the “Arbitrator”). The parties agree to work toward appointment of a three (3) member Arbitration panel within twenty-one (21) days after not being able to agree on a single arbitrator. The Arbitration shall be conducted in general accord with the Construction Industry Arbitration Rules of the American Arbitration Association then in effect. The parties reserve the right to alter and amend the rules for the Arbitration as they may mutually agree in writing.

(b) Jurisdiction of the Arbitrator shall not extend to setting aside or modifying the terms or requirements of the contract.

(c) Subject to agreement of the parties and the Arbitrator, the parties shall work in good faith to schedule the Arbitration and allow for the decision of the Arbitrator within two hundred forty (240) days after appointment of the Arbitrator.

(d) The Arbitrator shall render a written decision within twenty (20) days after the matter has been fully submitted. For Arbitrations before more than one
arbitrator, the decision of a majority of the panel shall govern. The
Arbitrator’s decision shall provide a basis for the findings and legal
conclusions and shall determine how the cost of the proceedings shall be borne
by the parties.

(e) The decision of the Arbitrator shall be binding and final. There shall be no
further appeal or judicial review, except under the limited circumstances as
allowed by Iowa law.

2. Litigation. If the Jurisdiction elects not to use arbitration as the means to reach
final resolution of the claim or fails to notify Contractor in writing within thirty
(30) days of its election, then the sole and exclusive remedy for final resolution of
the Claim shall be litigation which must be brought in Iowa District Court in and
for the County where the Jurisdiction is located or in the United Stated District
Court in and for the District where the Jurisdiction is located.

B. Contractor further consents that it will require its subrogees and assigns to enter into an
agreement to comply with the terms of Section, 1.12, and consent to the jurisdiction of either
the Iowa District Court in and for the County where the Jurisdiction is located or the United
States District Court in and for the District where the Jurisdiction is located, as to any causes
of action brought against it arising out of this contract or any work performed under it by
Contractor or its subcontractors, and further agrees, on behalf of itself, its subrogees and
assigns, to waive any and all objections to the jurisdiction of said court as to any such cause
of action. Contractor shall make such consent a condition of the retention of subrogees and
assigns.

1070, 2.10 DUST CONTROL: Add the following paragraph:

The Contractor shall be responsible to remove any project-related construction materials deposited on a
public street as well as related dust control measures. The Contractor shall employ all means necessary
to prevent tracking soil, or loss of material, onto public streets; including but not limited to, rocking
private access roads and removing excess material from equipment before leaving the construction site.
The Contractor shall promptly remove any material deposited on a public street utilizing mechanical
scrapping and street sweeping, or other means as required by the Jurisdictional Engineer.

1070, 2.16 READY MIX CONCRETE WASTE: New Section - Add the following 2.16:

2.16 READY MIX CONCRETE WASTE

Concrete trucks will be allowed to washout or discharge excess concrete only in specifically
designated areas which have been prepared to minimize contact between the concrete and storm water
discharge from the site. The hardened product from the concrete washout areas will be disposed of
by the Contractor as other non-hazardous waste materials or may be broken up and used on the site
for other appropriate uses.

1070, 3.02 INSURANCE REQUIREMENTS, A: Delete A and replace them with the following A.

A. The contractor shall not purchase liability insurance in the name of the jurisdiction unless such purchase
is allowed by special provision.
1070, 3.02 INSURANCE REQUIREMENTS, 2. Commercial General Liability Insurance: Revise the following limits on the Commercial General Liability Insurance:

- The Each Occurrence Limit shall be changed from $1,000,000 to $2,000,000.
- The Personal and Advertising Injury Limit, under Commercial General Liability, changed from $1,000,000 to $2,000,000.
- All other limits shall remain unchanged.

1070, 3.02 INSURANCE REQUIREMENTS, 3. Automobile Liability Insurance: Revise the following limits on the Automobile Liability Insurance:

- Minimum combined single limit per accident shall be changed from $1,000,000 to $2,000,000.

1070, 3.02 INSURANCE REQUIREMENTS, C: Add the following sentence at the end of 1, 2, 3, and 5: “Waiver of Subrogation in favor of Jurisdiction is required.”

1070, 3.02 INSURANCE REQUIREMENTS, C, 6. Additional Insured Endorsements: Replace “Except for Workers Compensation, the insurance specified shall:”, with “Except for Workers Compensation and Railroad Protective Liability Insurance, the insurance specified shall:”.

1070, 3.02 INSURANCE REQUIREMENTS, C: Add the following new 8.

8. WAIVER OF SUBROGATION: To the fullest extent permitted by law, Contractor hereby releases the Jurisdiction, including their respective elected and appointed officials, agents, employees and volunteers and others working on their behalf from and against any and all liability or responsibility to the Contractor or anyone claiming through or under the Contractor by way of subrogation or otherwise, for any loss arising out of liability or occupational injury without regard to the fault of the Jurisdiction or the type of loss involved. This provision shall be applicable and in full force and effect only with respect to loss or damage occurring during the time of this Agreement. The Contractor’s policies of insurance shall contain a clause or endorsement to the effect that such releases shall not adversely affect or impair such policies or prejudice the right of the Contractor to recover thereunder.

1070, 3.03 CONTRACTOR’S INDEMNITY – CONTRACTUAL LIABILITY INSURANCE: Delete B; and replace with the following B.

B. Except to the extent caused by or resulting from the negligent act or omission of the Jurisdiction or the Jurisdiction’s employees, consultants, agents or other for whom the Jurisdiction is responsible, to the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Jurisdiction and its officers, agents, employees, and consultants from and against all claims, damages, losses, and expenses, including but not limited to, attorney's fees, arising out of or resulting from the performance or prosecution of the work by the Contractor, its subcontractors, agents, or employees; or arising from any neglect, default, or mismanagement or omissions by the Contractor, its subcontractors or consultants, suppliers, third parties, or the agents, officers, or employees of any of them in the performance of any duties imposed by the contract or by law; provided any such claim, damage, loss, or expense:

1. is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including economic damages and the loss of use resulting therefrom, and

2. is caused in whole or in part by any act or omission of the Contractor, its subcontractors or consultants, suppliers, third parties, or the agents, officers, or employees of any of them, or anyone for whose acts any of them may be liable.
Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to any party or person described in this subsection.

1070, 3.04 CONTRACTORS INSURANCE FOR OTHER LOSSES; WAIVER OF SUBROGATION, **B**: Delete B and replace with the following B.

B. Contractor shall cause each of its subcontractors, consultants, suppliers, third parties, or the agents of any of them, to carry insurance sufficient to cover all loss to such materials, tools, motor vehicles, and equipment. All insurance carried by the Contractor, or its subcontractors, consultants, suppliers, third parties or the agents of any of them, covering risk of loss or damage to materials, tools, motor vehicles, and equipment used in the performance of the Work, shall provide a waiver of subrogation against the Jurisdiction, as specified in Section 1070, 3.02 Insurance Requirements, C.8. To the extent that any subcontractors, consultants, suppliers, third parties or the agents of any of them, do not provide such coverage, any uninsured loss shall be the sole responsibility of the Contractor.

1070, 3.05 PROPERTY INSURANCE: Delete A, D, and M; and replace them with the following A, D, and M.

A. Property Insurance Required: The Contractor shall purchase and maintain property insurance, being either Builder’s Risk Insurance or an Installation Floater, for the period of the contract until final acceptance of the work by the Jurisdiction, on all construction contracts where a building, electrical, mechanical, or plumbing permit is required by the permitting entity.  

1. Builder’s Risk Insurance by Contractor: On contracts for construction of new buildings or on contracts when Builder’s Risk Insurance is applicable to the contract by definition, the Contractor shall purchase and maintain Builder’s Risk Insurance for the duration of the contract; unless the Jurisdiction states by special provision that the Jurisdiction shall purchase and maintain the Builder’s Risk Insurance. This property insurance, Builder's Risk Insurance, provided by the Contractor shall be in the amount of the initial bid amount, or in an amount equal to the estimated value of actual building construction, whichever is less, as well as applicable modifications thereto for the entire work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance of the work by the Jurisdiction. The insurance shall include interests of the Jurisdiction, the Contractor, subcontractors, and sub-subcontractors in the work. If the Contractor’s property insurance covering the work has any deductible, the Contractor shall be responsible to pay the cost associated with the deductible. Flood and Earthquake Insurance shall be required as part of the Builder’s Risk Policy, and the minimum required policy limits shall be not less than 10% of the full amount of the contract. If Boiler and Machinery Insurance is required by the contract documents or by law, the Contractor shall purchase the Boiler and Machinery Insurance if the Contractor is required to purchase the Builder’s Risk Insurance. If Boiler and Machinery Insurance coverage is included in the Contractor’s Builders Risk Insurance policy, it may be used to satisfy the Boiler and Machinery Insurance requirement to the extent such coverage specifically covers such objects during installation, testing, and until final acceptance by the Jurisdiction.

2. Builder’s Risk Insurance by the Jurisdiction: When stated in the special provisions, the Jurisdiction shall purchase and maintain property insurance, a.k.a. Builder's Risk Insurance in the amount of the initial bid amount, or in an amount equal to the estimated value of actual building construction, whichever is less, as well as applicable modifications thereto for the entire work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final acceptance of the work by the Jurisdiction. The insurance shall include interests of the Jurisdiction, the Contractor, subcontractors, and sub-subcontractors in the work. This property insurance covering the work will have a deductible of $5,000 for each occurrence, or as stated in the special provisions, which will be the responsibility of the Contractor. Flood
and Earthquake Insurance shall be required as part of the Builder’s Risk Policy, and the minimum required policy limits shall be not less than 10% of the full amount of the contract. If Boiler and Machinery Insurance is required by the contract documents or by law, the Jurisdiction shall purchase the Boiler and Machinery Insurance if the Jurisdiction is required to purchase the Builder’s Risk Insurance. If Boiler and Machinery Insurance coverage is included in the Jurisdiction’s Builders Risk Insurance policy, it may be used to satisfy the Boiler and Machinery Insurance requirement to the extent such coverage specifically covers such objects during installation, testing, and until final acceptance by the Jurisdiction.

3. Installation Floater: On the remainder of these contracts where Builder’s Risk Insurance is not applicable to a contract by definition and an Installation Floater is applicable by definition, the Contractor shall purchase and maintain an Installation Floater for the duration of the contract. This Installation Floater shall cover all materials, fixtures, equipment, and supplies provided for the job. Such insurance shall be on an “all risk” form in an amount equal to the maximum value of such materials, equipment, or supplies covered on the job site, off-premises at any temporary storage location, or in transit, and shall include coverage for hoisting and rigging. The Installation Floater shall be maintained until final acceptance of the work by the Jurisdiction. If the Contractor’s Installation Floater covering the equipment and work has any deductible, the Contractor shall be responsible to pay the cost associated with the deductible. If Boiler and Machinery Insurance is required by the contract or by law, the Contractor shall purchase the Boiler and Machinery Insurance; the Installation Floater may be used to satisfy this requirement to the extent the Boiler and Machinery Insurance coverage specifically covers such objects during installation, testing, and until final acceptance by the Jurisdiction.

D. Boiler and Machinery Insurance: When required by the contract documents or by law, Boiler and Machinery Insurance shall specifically cover such insured objects during installation, testing, and until final acceptance by the Jurisdiction; this insurance shall include interest of the Jurisdiction, Contractor, subcontractors, and sub-subcontractors in the work, and the Jurisdiction and Contractor shall be named insureds. A Builders Risk Insurance policy or an Installation Floater, when also required by the contract documents or by law, may satisfy this requirement as indicated in 1070, 3.05 A.1, 2. and 3. above. If Boiler and Machinery Insurance is required by the contract documents or by law, the Contractor shall purchase the Boiler and Machinery Insurance. However, if the contract requires the Jurisdiction to purchase the Builder’s Risk Insurance, the Jurisdiction shall also purchase the Boiler and Machinery Insurance.

M. Installation Floater: See Section 1070, 3.05, A.3 above.

1070, 3.06 ENDORSEMENT NAMING JURISDICTION AS AN ADDITIONAL INSURED / CANCELLATION AND MATERIAL CHANGE/ GOVERNMENTAL IMMUNITIES ENDORSEMENT: Under C. delete the first full paragraph regarding the Cancellation and Material Change Endorsement language and replace it with the following:

Thirty (30) days Advance Written Notice of Cancellation, ten (10) days Written Notification of Cancellation due to non-payment of premium and forty-five (45) days Advance Written Notification of Non-Renewal shall be sent to the Jurisdiction at the office and attention of the Certificate Holder. This endorsement supersedes the standard cancellation statement on the Certificate of Insurance to which this endorsement is attached.

1070, 3.06 ENDORSEMENT NAMING JURISDICTION AS AN ADDITIONAL INSURED / CANCELLATION AND MATERIAL CHANGE/ GOVERNMENTAL IMMUNITIES ENDORSEMENT: Replace first sentence under E. with the following: If allowed, as specified in Section 1070, 3.02 Insurance Requirements A., all liability policies purchased in the Jurisdiction’s name shall include a Governmental Immunities Endorsement, pursuant to Iowa Code Section 670.4, which endorsement shall include the following provisions:
1070, 3.07 PROOF OF INSURANCE: Add the following sentence at the end of A: “Mail Certificate of Insurance to: Engineering Department, City of Des Moines, City Hall, 400 Robert D. Ray Drive, Des Moines, Iowa 50309.”

SECTION 1080 – PROSECUTION AND PROGRESS

1080, 1.03 WORK PROGRESS AND SCHEDULE: Add the following new D:

D. No person shall operate or permit the operation of any tools or equipment in construction, drilling or demolition work or in preventive maintenance work for public service utilities between the hours of 10:00 p.m. and 7:00 a.m. without the written permission of the Engineer.

1080, 1.09 EXTENSION OF TIME, B. – Request for Extension of Time: Add the following sentence before the last sentence in the first paragraph: “The request for an extension of time is the sole and exclusive remedy of the Contractor for the events listed below.

SECTION 1090 – MEASUREMENT AND PAYMENT

1090, 1.04 PAYMENT FOR CHANGE ORDERS, B: Add the following new 4:

4. Extra Work Performed by the Subcontractor: The percentage markup to be allowed to the Contractor for extra performed by a Subcontractor shall be a maximum of 10%.

1090, 1.05 PROGRESS PAYMENTS, B. Retainage: Delete B. in its entirety and replace with the following B.

B. Retainage: The Jurisdiction shall retain from each monthly progress payment 3% of the amount determined to be due according to the estimate of the Engineer. Early release of retained funds may be requested by the Contractor according to Iowa Code Section 573.28.

SECTION 2010 – EARTHWORK, SUBGRADE, AND SUBBASE

2010, 3.06 SUBGRADE PREPARATION, A. Uniform Composition: 1. Subgrade Compaction in Fill Sections: Add the following new c.

C. Proof roll subgrade as specified in Section 3.06, B to locate soft or yielding areas prior to placement of top six-inch lift.

2010, 3.06 SUBGRADE PREPARATION, A. Uniform Composition: 2. Subgrade Compaction in Cut Sections: Add the following new d.

d. Prior to scarify, mix, and re-compact the bottom six inches of subgrade (paragraph 2.b above), proof roll subgrade as specified in Section 3.06, B to locate soft or yielding areas.

2010, 3.06 SUBGRADE PREPARATION, B. Subgrade Stability: Delete 1. in its entirety and replace with the following 1.

1. Perform proof rolling with a fully loaded single axle or tandem axle truck. Operate trucks at less than 10 mph. Make multiple passes for every lane. The subgrade will be considered to be unstable if, under the operation of the loaded truck, the surface shows yielding (soil wave in front of the loaded tires) or rutting of more than 2 inches, measured from the top to the bottom of the rut at the outside edges.
SECTION 3010 – TRENCH EXCAVATION AND BACKFILL

3010, 3.02 ROCK OR UNSTABLE SOILS IN TRENCH BOTTOM: Delete B. and replace with the following new B.
   B. The Engineer will review the contractor’s request for the need for over-excavation and trench foundation stabilization and authorize the work prior to installation of pipes and structures.

3010, 3.05 PIPE BEDDING AND BACKFILL, E. Final Trench Backfill: 3. Class I and Class II Backfill Material: Delete a. and replace with the following new a.
   a. Compact to at least 65% relative density within right-of-way or under any paved surface or within two feet thereof.

3010, 3.05 PIPE BEDDING AND BACKFILL, E. Final Trench Backfill: 4. Class III and Class IVA Backfill Material: Delete a. and replace with the following new a.
   a. Compact to at least 95% of Standard Proctor Density within right-of-way or under any paved surface or within two feet thereof.

SECTION 4010 – SANITARY SEWERS

4010, 3.06 SANITARY SEWER SERVICE STUBS, C: Add the following new 7:
   7. Mark the location of all sanitary sewer service stubs at the time of installation by a two-inch wide detectable marking tape installed at a depth of 18 inches to 24 inches below finished grade, directly over the service stub, for its entire length and brought up to the surface at the end of the service stub adjacent to the post marking the stub location. The tape shall be green in color and marked “Sanitary Sewer Service Stub Buried Below”.

4010, 3.10 SANITARY SEWER CLEANOUT: Delete in its entirety and replace with the following:
   Cleanouts are not allowed on sanitary sewer mains in the City of Des Moines. Figure 4010.203 shall apply to services only.

SECTION 4020 – STORM SEWERS

4020, 2.01 STORM SEWERS, Parts A-L: Reinforced Concrete Pipe shall be required for storm sewer construction in the Right-Of-Way or Public Easement areas. Minimum size of storm sewer pipe in the Right-Of-Way and Public Easement areas shall be 15-inch minimum diameter.

SECTION 4030 – PIPE CULVERTS

4030, 2.01 Pipe Culverts, Parts A-D: Reinforced Concrete Pipe shall be required for pipe culvert construction in the Right-Of-Way or Public Easement areas. Minimum size of pipe culverts in the Right-Of-Way and Public Easement areas shall be 15-inch minimum diameter.

SECTION 4040 – SUBDRAINS AND FOOTING DRAIN COLLECTORS

4040, 2.01 FOOTING DRAIN COLLECTORS: Use material for pipe and fittings complying with the current Adopted Edition of the Uniform Plumbing Code (UPC). In addition to the materials identified in the UPC, the pipe shall comply with ASTM D 3034, SDR 23.5 pipe will be allowed.
4040, 2.02 **TYPE 1 SUBDRAINS** (LONGITUDINAL SUBDRAIN), C. Corrugated Polyethylene Tubing and Fittings (Corrugated PE): Delete Type C and Type CP. Only Type S or Type SP are allowed in the City of Des Moines.

4040, 2.03 **TYPE 2 SUBDRAINS** (COMBINATION SUBDRAIN/FOOTING DRAIN COLLECTOR), B.3. HDPE Pipe: Delete Type CP. Only Type SP is allowed in the City of Des Moines.

4040, 2.09 **FOOTING DRAIN SERVICE STUBS** - Add this new 2.09 and the following note: Use material for pipe and fittings complying with the current Adopted Edition of the Uniform Plumbing Code (UPC). In addition to the materials identified in the UPC, the use of SDR 23.5 pipe will be allowed.

4040, 3.02 **FOOTING DRAIN COLLECTORS, C:** Add the following new 3:

3. Type B cleanouts should be used for footing drain collectors less than 5 feet in depth in the City of Des Moines. Footing drain collectors greater than 5 feet deep, a Type A cleanout shall be used.

4040, 3.03 **FOOTING DRAIN SERVICE STUBS:** Add the following new D and E.

D. Mark the location of all footing drain service stubs at the time of installation by a two-inch wide detectable marking tape installed at a depth of 18 inches to 24 inches below finished grade, directly over the service stub, for its entire length and brought up to the surface at the end of the service stub adjacent to the post marking the stub location. The tape shall be green in color and marked “Footing Drain Service Stub Buried Below”.

E. ABS, PVC and SDR 23.5 pipe shall be installed with a minimum bedding of 4” below and up all side with 3/8” clean smooth gravel or a bedding product approved by the Engineer.

4040, FIGURE 4040.232, SUBDRAIN CLEANOUTS: Add the following new Note 7 to Figure 4040.232.

7. Type B cleanouts should be used for footing drain collectors or combination subdrain/footing drain collectors less than 5 feet in depth in the City of Des Moines. Footing drain collectors greater than 5 feet deep, a Type A cleanout shall be used.

**SECTION 4060 – CLEANING, INSPECTION, AND TESTING OF SEWERS**

4060, 3.03 **VIDEO INSPECTION, A. General:** Delete 1. and replace with the following new 1.

1. Conduct video inspection of all new and rehabilitated sanitary sewers, storm sewers, pipe culverts, and footing drain collectors after all backfill and compaction operations are completed, but prior to paving, unless otherwise specified in the contract documents.

**SECTION 6010 – STRUCTURES FOR SANITARY AND STORM SEWERS**

6010, PARTS 1, 2, 3, and Figures: Delete all references in this entire section to “precast rectangular intakes”. Only circular precast intakes and manholes are allowed in the City of Des Moines. All square or rectangular shaped intakes and manholes shall be cast-in-place.

6010, 2.03, B. **REINFORCEMENT:** Add the following second sentence: All reinforcement for cast-in-place structures shall be epoxy coated.

6010, 2.09 **MANHOLE OR INTAKE ADJUSTMENT RINGS (Grade Rings):** Add the following new C.

C. Manhole adjustment rings are not required to have pre-formed or pre-drilled holes for the anchor bolts.
6010, 2.10 CASTINGS (Ring, Cover, Grate, and Extensions), D. Casting Types: 2. - Intakes: Delete b. and replace it with the following b.

b. Castings shall include design shown in this General Supplemental for lids on Type E, F, and G storm sewer castings shown for Figure 6101.602.

6010, 2.13 STEPS: Delete entire Section as manhole steps are not allowed in the City of Des Moines.

6010, 2.15 ANCHOR BOLTS AND WASHERS, B. Diameter: Delete B. and replace it with the following B.:
Provide bolts and washers 1/8 inch smaller than hole or slot in the casting frame but not less than 7/8 inch diameter.

6010, 3.01 GENERAL REQUIREMENTS FOR INSTALLATION OF MANHOLES AND INTAKES, J. Castings: Delete J. and replace with the following J.: Install the type of casting specified in the contract documents and adjust to proper grade. Where a manhole or intake is to be in a paved area, adjust the casting to match the slope of the finished surface. When castings with a bolt down cover (Type C or D) are specified, attach casting frame to the structure with four anchor bolts.

SECTION 7010 – PORTLAND CEMENT CONCRETE PAVEMENT

7010, 3.02 PAVEMENT CONSTRUCTION, E. Bar and Reinforcement Placement, 1. Tie Bars: Delete a. and replace it with the following a.

a. Place bars prior to vibration. Bars shall be supported by approved chairs. Placement in position by a machine is not allowed.

7010, 3.02 PAVEMENT CONSTRUCTION, E. Bar and Reinforcement Placement: Add the following new 5:

5. PCC pavement slabs with manhole castings, with or without boxouts, shall have reinforcement similar to PV-103 around the castings.

7010, 3.02 PAVEMENT CONSTRUCTION, F. Concrete Pavement Placement: Delete 1. and replace it with the following 1.

1. Use paving machine for all full-width paving, pavement widening, and pavement reconstruction 100 feet or more in length.

7010, 3.07 CURB AND GUTTER CONSTRUCTION: Delete B. and replace it with the following B.

B. Use curb and gutter machine for all curb and gutter construction 100 feet or more in length.

7010, 3.07 QUALITY CONTROL, D. Pavement Thickness: Add the following as the first sentences under 1: Coring of pavement will not be required by the City of Des Moines if depth checks of the plastic thickness of the pavement are within one-half inch of the design thickness. If the variance exceeds one-half inch this section shall apply.

7010, FIGURE 7010.101, JOINTS: On Sheet 2 of 8 under ‘C’ Joint in Curb add the following: The entire curb shall be sealed with Joint Sealant Material.

7010, FIGURE 7010.101, JOINTS: On Sheet 3 of 8 delete Note 11 and replace with the following Note 11.

11. Sawing and sealing of the joint is required. See Detail D-2.

On Sheet 3 of 8 Joint Types KT-1, KT-2, and KT-3 shall not be used.
7010, FIGURE 7010.901, PCC PAVEMENT JOINTING: Add Note 6 with the following:

6. All new roadway pavements shall be a minimum width of 27 feet back to back with parking on one side and 33 feet with parking on two sides.

SECTION 7020 – HOT MIX ASPHALT PAVEMENT

7020, 3.01 HMA PAVEMENT, Add the following new H.:

H. The paver shall be capable of paving a minimum continuous width of twenty (20) foot wide strip without seam. Pavers in tandem will be acceptable; however, an adequate number of personnel shall be available to operate both pavers simultaneously.

7020, FIGURE 7020.901, HMA PAVEMENT: Add Note 3 with the following:

3. All new roadway pavements shall be a minimum width of 27 feet back to back with parking on one side and 33 feet with parking on two sides.

SECTION 7030 – SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS

7030, 2.07 DETECTABLE WARNINGS: Add the following sentence at the end: Only cast iron detectable warnings are allowed in the City of Des Moines.

7030, 3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, A. Form Setting: Add the following new 6:

6. The turning space for a sidewalk or shared use path shall be formed separately from the adjoining ramps and sidewalk or shared use path.

7030, 3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, B. Concrete Pavement Placement, 1. Shared Use Path: Add the following sentence at the end: “When the Portland Cement Concrete is delivered to the project on the prepared subgrade or subbase, the loads shall be limited to 5 tons for single axle vehicles or 10 tons for tandem axle or larger vehicles.”

7030, 3.04 PCC, SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, B. Concrete Pavement Placement, 2. Sidewalk: Add the following new g:

g. The turning space for a sidewalk or shared use path shall be placed separately from the adjoining ramps and sidewalk or shared use path.

7030, 3.04 PCC SIDEWALKS, SHARED USE PATHS, AND DRIVEWAYS, F. Jointing: 4. Isolation Joints: Delete b. and replace it with the following new b.

b. For a sidewalk constructed with a driveway, install a ½” expansion joint on the property side of the sidewalk and a ½” expansion joint on the street side of the sidewalk.

7030, 3.05 HMA SHARED USE PATHS AND DRIVEWAYS: Add the following second sentence: When Hot Mix Asphalt is delivered to the project on the prepared subgrade or subbase, the loads shall be limited to 5 tons for single axle vehicles or 10 tons for tandem axle or larger vehicles.

7030, FIGURE 7030.101, CONCRETE DRIVEWAY, TYPE A: Delete the references to “E Joint” on the property side of the sidewalk and “C or E Joint” on the street side of the sidewalk, and replace with “install a ½” expansion joint on the property side of the sidewalk and a ½” expansion joint on the street side of the sidewalk”. In addition, install a ½” expansion joint in the sidewalk at the extension of both edges of the driveway. Delete 7 and replace with the following 7; “Install a ½” expansion joint at the back of curb.”
7030, FIGURE 7030.102, CONCRETE DRIVEWAY, TYPE B: Delete the references to “E Joint” on the property side of the sidewalk and “C or E Joint” on the street side of the sidewalk, and replace with “install a ½” expansion joint on the property side of the sidewalk and a ½” expansion joint on the street side of the sidewalk”. In addition, install a ½” expansion joint in the sidewalk at the extension of both edges of the driveway.

7030, FIGURE 7030.201, CLASSES OF SIDEWALKS: The detail for CLASS A SIDEWALK shall be revised to delete the “4” min.” thickness dimension of the sidewalk and replace with “5” min.”.

7030, FIGURE 7030.202, CURB DETAILS FOR CLASS A SIDEWALK: On Detail 3 delete the note “Sealed ‘E’ joint” and replace it with the following note “Sealed ‘B’ joint”. On Detail 1, 2, and 3 delete the “4 min.” thickness dimension of the sidewalk and replace with “5” min.”.

SECTION 9020 – SODDING

9020, 3.03 – SOD INSTALLATION: Delete A. and replace it with the following new A.
A. Do not install sod between the dates of June 1 and August 31, unless authorized by the Engineer.

SECTION 9040 – EROSION AND SEDIMENT CONTROL

9040, 1.03 – SUBMITTALS: Add the following sentences: The Jurisdiction will not approve the contractor’s Stormwater Pollution Prevention Plan (SWPPP) or revisions to the SWPPP; instead, the Jurisdiction will only review and comment on the SWPPP and any revisions. The contractor shall submit to the Engineer a copy of the Iowa Department of Natural Resources authorization prior to the Jurisdiction’s issuance of the Notice to Proceed for the work.

9040, 1.08 – MEASUREMENT FOR PAYMENT, A. Stormwater Pollution Prevention Plan (SWPPP): Delete A. in its entirety and replace with the following A.

A. Stormwater Pollution Prevention: Item will be paid for as a lump sum for the project based on the following formula: 30% of the bid amount after review of the SWPPP by the Engineer and filing a Notice of Intent by the contractor, an additional 20% of the bid amount when 25% of the total original contract amount is earned, an additional 20% of the bid amount when 50% of the total original contract amount is earned, an additional 20% of the bid amount when 75% of the total original contract amount is earned, and the remaining 10% of the bid amount upon filing the Notice of Discontinuation by the contractor. Item shall include the following activities and work:

1. Stormwater Pollution Prevention Plan (SWPPP) Preparation: Item includes reviewing and preparation of any modifications necessary to the general SWPPP provided by the Jurisdiction based on the Contractor’s proposed scheduling and construction methods, filing a Notice of Intent for coverage of the project under the Iowa DNR NPDES General Permit No. 2, and payment of associated NPDES permit fees. The Jurisdiction will publish the Public Notice of Storm Water Discharge and provide an affidavit of publication to the contractor.

2. Management: Item includes all work required to comply with the administrative provisions of the Iowa DNR NPDES General Permit No. 2; including record keeping, documentation, updating the SWPPP, filing the Notice of Discontinuation, etc. Item also includes weekly inspections required to satisfy the provisions of General Permit No. 2, unless otherwise stated in the contract documents.

3. Inspection: Item includes inspection of the disturbed areas, and erosion and sediment control measures performed by the contractor, at least once every seven (7) calendar days until the disturbed areas have been stabilized with a perennial vegetative cover of sufficient density to preclude erosion.
4. **Additional Erosion and Sediment Control Measures:** Item includes the cost of erosion and sediment control measures included in the contractor's modifications to the general SWPPP provided by the Jurisdiction that are either not included as bid items on the proposal or exceed 20% of the proposal unit quantity for the measure, as well as replacement of these measures if needed. The contractor will be paid at the unit bid price for additional erosion and sediment control measures constructed that are included in the contractor's modifications to the general SWPPP provided by the Jurisdiction when the quantity of these additional measures is less than or equal to 20% of the contract quantity for the measure.

**9040, 3.01 – SWPPP PREPARATION:** Delete in its entirety and replace with the following.

A. Review and prepare any modifications necessary to the general SWPPP provided by the Jurisdiction based on the Contractor’s proposed scheduling and construction methods. Prepare a Stormwater Pollution Prevention Plan (SWPPP) according to the requirements of the Iowa DNR NPDES General Permit No. 2.

B. Have the SWPPP prepared by an individual experienced in erosion and sediment control.

C. Ensure that controls utilized in the SWPPP conform to the type and quantity of erosion and sediment controls shown in the contract documents. See 9040.1.08, 4 above for measurement for payment of any erosion and sediment control measure used that is not shown in the contract documents or exceeds 20% of the contract quantity for the measure.

D. Submit the completed SWPPP to the Engineer for review and comment prior to filing the Notice of Intent.

E. The Jurisdiction will publish the Public Notice of Storm Water Discharge, as required by the NPDES General Permit No. 2 and provide an affidavit of publication to the contractor.

F. File the Notice of Intent and fee, as required by the NPDES General Permit No. 2.

G. Prior to beginning grading, excavation, or clearing and grubbing operations, all erosion and sediment control measures identified in the SWPPP shall be installed or constructed.

**9040, 3.02 – SWPPP MANAGEMENT:** Delete C. in its entirety and replace with the following C.

C. Submit all SWPPP revisions to the Engineer for review and comment.

**SECTION 9080 – CONCRETE STEPS AND HANDRAIL**

**9080, 2.01 – MATERIALS, B. Reinforcing Steel:** Add the following sentence at the end: “All reinforcement shall be epoxy coated.”
LID SHALL BE USED FOR TYPE E, TYPE F, AND TYPE G APPLICATIONS AS REFERENCED BY SUDAS FIGURE 6010.602.

RAISED LETTERS Flush WITH TOP SURFACE

IT IS IN OUR HANDS
PROTECT OUR WATER

LETTERED "USA" OR "MADE IN USA"

PICKHOLES

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 358
FINISH: NO PAINT

STORM SEWER LID
FOR THE CITY OF DES MOINES, IOWA