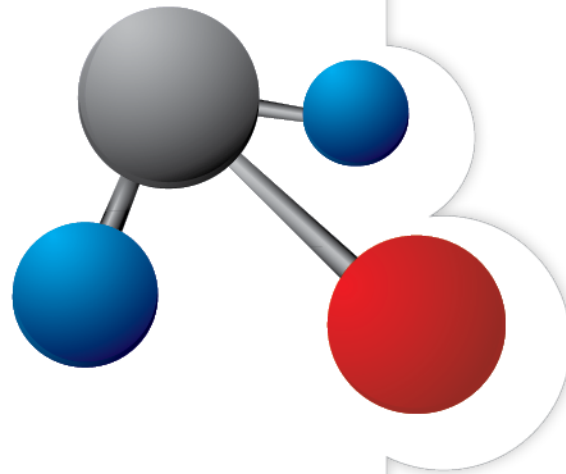


# BEACH 2025 STREET AND UTILITY IMPROVEMENTS



PREPARED FOR:

City of Beach

Beach,  
North Dakota



*AE2S Project No. P05066-2022-001*

November 2024

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## PROJECT MANUAL



**Advanced Engineering and Environmental Services, LLC.**  
1815 Schafer St Ste 301  
Bismarck, ND 58501  
Ph: 701-221-0530  
Web: [www.AE2S.com](http://www.AE2S.com)

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# **DIVISION 00 PROCUREMENT AND CONTRACTING REQUIREMENTS**



**SPECIFICATIONS AND DOCUMENTS  
FOR  
BEACH 2025 STREET AND UTILITY IMPROVEMENTS  
Beach, ND**

**November 2024**

**CIVIL ENGINEER**

I hereby certify that these Plans and Specifications were prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.



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Zac Ranisate, PE, Advanced Engineering and Environmental Services, LLC

Date: November 15, 2024

REG NO. PE-30017

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**ADVERTISEMENT FOR BIDS**

**City of Beach  
Beach, ND  
2025 Street & Utility Project**

**General Notice**

**City of Beach** (Owner) is requesting Bids for the construction of the following Project:

**Beach 2025 Street & Utility Project  
AE2S Project No. P05066-2022-001**

Bids for the construction of the Project will be received at the **Beach City Hall** located at **153 East Main Street, PO Box 278, Beach, ND 58621** until **Wednesday, January 15, 2025 at 12:00 PM Mountain Time** . At that time the Bids received will be **publicly** opened and read.

Bids being mailed or delivered prior to January 15, 2025 can be sent to:

City of Beach  
Attn: Kim Gaugler, City Auditor  
153 Main Street  
Beach, ND 58621

-or-

Bids shall be uploaded to: QuestCDN vBid System. Bids will be read aloud via in person and via Teams conferencing:

Video and Audio Link:

[https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_ZmU2ODEyY2QtZjkwMC00NWZlLWI4MWYtYWRhZjdmNjJhZTJh%40thread.v2/0?context=%7b%22Tid%22%3a%22b32addb5-f43d-4c2a-8383-dd63422a2655%22%2c%22Oid%22%3a%2285212bd4-63ee-4238-a8ed-2a26fedc95d8%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZmU2ODEyY2QtZjkwMC00NWZlLWI4MWYtYWRhZjdmNjJhZTJh%40thread.v2/0?context=%7b%22Tid%22%3a%22b32addb5-f43d-4c2a-8383-dd63422a2655%22%2c%22Oid%22%3a%2285212bd4-63ee-4238-a8ed-2a26fedc95d8%22%7d)

Meeting ID: 279 917 404 834

Passcode: LE5fy8

Audio Only:

Phone Number: 1 701-566-0964

Meeting ID: 695 894 260#

The Project includes the following Work:

**Contract No. 1 – General Construction:** Work generally consists of bonding, mobilization, erosion control, remove and replace approximately 9,700 linear feet of 8-inch PVC watermain and associated service lines and curb stops, remove and replace all lead service lines in the project area remove and replace select areas of curb and gutter within the project area, repaving 5<sup>th</sup> Ave SE from 3<sup>rd</sup> Street SE to Main Street. Repaving will consist of approximately 13,300 square yards of asphalt pavement; 13,440 square yards of aggregate base; 2,815 square feet of concrete valley gutter; 4,855 square feet of concrete sidewalk; 2.642 linear feet of concrete curb and gutter; 167 water service connections, 10 being lead lines; and other components such as seeding, signing, site restorations, and incidental trench dewatering are also included.

Bids are requested for the following Contract: **Contract No. 1 – General Construction**

## **Obtaining the Bidding Documents**

Information and Bidding Documents for the Project can be found at the following designated website:

[www.Questcdn.com](http://www.Questcdn.com) Project # 9415845

Bidding Documents may be downloaded from the designated website. Prospective Bidders are urged to register with the designated website as a plan holder, even if Bidding Documents are obtained from a plan room or source other than the designated website in either electronic or paper format. The designated website will be updated periodically with addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. All official notifications, addenda, and other Bidding Documents will be offered only through the designated website. Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

Information and Bidding Documents for the Project can also be found at the issuing Office for the Bidding Documents:

**Advanced Engineering and Environmental Services, LLC (AE2S)**  
**1815 Schafer St., Suite 301**  
**Bismarck, ND 58501**

Prospective Bidders may obtain or examine the Bidding Documents at the Issuing Office on Monday through Friday between the hours of 8:00 AM to 5:00 PM Central Standard Time (CST), and may obtain copies of the Bidding Documents from the Issuing Office as described below. Partial sets of Bidding Documents will not be available from the Issuing Office. Neither Owner nor Engineer will be responsible for full or partial sets of Bidding Documents, including addenda, if any, obtained from sources other than the Issuing Office.

Copies of the Bidding Documents may be obtained from the Issuing Office or designated websites by paying a non-refundable deposit of \$50 for each set.

### **Instructions to Bidders.**

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

**Bidders on this work will be required to comply with American Iron and Steel requirements of the Consolidated Appropriations Act, 2014. The requirements for bidders and contractors under this regulation are explained in the specifications.**

**Bidders are required to comply with Davis-Bacon prevailing wage requirements**

**Bidders on this work will be required to comply with Title 40 CFT Part 33- Participation by Disadvantaged Business Enterprises in the United States Environmental Protection Agency Programs. The requirements for bidders and contractors under this regulation concern utilization of Minority Business Enterprises (MBE), Women's Business Enterprises (WBE), and Small Business Enterprises (SBE) and are explained in the specifications.**

**The goal for MBE is 2% of the total dollar value of the project. The goal for WBE is 3% of the total dollar value of the project. To demonstrate a good faith effort to comply, bidders must include the MBE/WBE subcontractor solicitation form in the bid package.**

**Bidders on this work will be required to comply with the President's Executive Order No. 11246, as amended. The requirements for bidders and contractors under this order are explained in the specifications.**

**Bidders are also required to comply with Build America, Buy America Act requirements.**

**Bidders are required to comply with Bipartisan Infrastructure Law (BIL) signage requirements.**

**This Advertisement is issued by:**

**Owner: City of Beach**

**By: Kim Gaugler**

**Title: City Auditor**

**Date: December 12, 2024**

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# INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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## ARTICLE 1—DEFINED TERMS

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

## ARTICLE 2—BIDDING DOCUMENTS

- 2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.
- 2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.
- 2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.
- 2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.
- 2.06 *Electronic Documents*
- A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.
1. Bidding Documents will be provided in Adobe PDF (Portable Document Format) (.pdf) that is readable by Adobe Acrobat Reader.. It is the intent of the Engineer and Owner



that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

- B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

### **ARTICLE 3—QUALIFICATIONS OF BIDDERS**

3.01 **Deleted**

3.02 **Deleted**

3.03 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:

- A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.
- B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.
- C. Bidder's state or other contractor license number, if applicable.
- D. Subcontractor and Supplier qualification information.
- E. Other required information regarding qualifications.

3.04 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.05 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

### **ARTICLE 4—PRE-BID CONFERENCE**

4.01 A pre-bid conference will not be conducted for this Project.

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

5.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

- 1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:
  - a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.
  - b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.
  - c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
  - d. Technical Data contained in such reports and drawings.
- 2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.
- 3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

- A. No other Site-related documents are available.

#### 5.04 *Site Visit and Testing by Bidders*

- A. Bidder is required to visit the Site and conduct a thorough visual examination of the Site and adjacent areas. During the visit the Bidder must not disturb any ongoing operations at the Site.
- B. **Deleted**
- C. Bidders visiting the Site are required to arrange their own transportation to the Site.
- D. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: **Kim Gaugler (701-872-4103)** Bidder must conduct the required Site visit during normal working hours.
- E. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.
- F. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.
- G. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- H. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

#### 5.05 *Owner's Safety Program*

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

#### 5.06 *Other Work at the Site*

- A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

### **ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS**

#### 6.01 *Express Representations and Certifications in Bid Form, Agreement*

- A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should

review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

- B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

#### **ARTICLE 7—INTERPRETATIONS AND ADDENDA**

- 7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.
- 7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:
  - A. **E-mail Zac Ranisate (Zac.Ranisate@ae2s.com)**
- 7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.
- 7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

#### **ARTICLE 8—BID SECURITY**

- 8.01 A Bid must be accompanied by Bid security in a separate envelope made payable to Owner in an amount of **five (5)** percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.
- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

## **ARTICLE 9—CONTRACT TIMES**

- 9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.
- 9.02 **Deleted**
- 9.03 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

## **ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS**

- 10.01 **Deleted**
- 10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those “or-equal” or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner.
- 10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

## **ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

- 11.01 **Deleted**
- 11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the Work within five days after Bid opening:
- 11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.
- 11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers.

Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

## **ARTICLE 12—PREPARATION OF BID**

- 12.01 The Bid Form is included with the Bidding Documents.
- 12.02 All blanks on the Bid Form must be completed in ink or by typewriter and the Bid signed.
  - A. Mailing Option: Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”
  - B. QuestCDN vBid System Option: A Bid price shall be indicated on both the Bid Form and entered online into the vBid system. If there are any discrepancies, the bid price will be governed by the vBid system.
- 12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown. The corporate seal must be affixed and attested by the corporate secretary or an assistant corporate secretary
- 12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.
- 12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.
- 12.06 A Bid by an individual must show the Bidder’s name and official address.
- 12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.
- 12.08 All names must be printed in ink below the signatures.
- 12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.
- 12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.
- 12.11 The Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

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

#### **ARTICLE 13—BASIS OF BID**

13.01 **Deleted**

13.02 **Deleted**

13.03 **Deleted**

13.04 **Deleted**

13.05 *Unit Price*

- A. Bidders must submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The “Bid Price” (sometimes referred to as the extended price) for each unit price Bid item will be the product of the “Estimated Quantity”, which Owner or its representative has set forth in the Bid Form, for the item and the corresponding “Bid Unit Price” offered by the Bidder. The total of all unit price Bid items will be the sum of these “Bid Prices”; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

13.06 **Deleted**

13.07 **Deleted**

#### **ARTICLE 14—SUBMITTAL OF BID**

- 14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.
- 14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the

notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.

14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

14.04 ***Bidder shall prepare his or her bid as follows:***

**A. Mailing Option**

**1. Enclosed in an opaque sealed envelope:**

- a. Completed Bid Form. (EJCDC C-410, 2018)
- b. Bidder Qualifications Statement. (EJCDC C-451, 2018)
- c. MBE/WBE Subcontractor Solicitation Information; and
- d. SRF Certification Regarding Debarment, Suspension, and Other Responsibility Matters

**2. Mark on the outside of the opaque sealed envelope:**

- a. "BID ENCLOSED"
- b. City of Beach  
Attn: Kim Gaugler, City Auditor  
153 Main Street  
Beach, ND 58621
- c. BID FOR: 2025 Street and Utility Improvements
- d. BID FROM: (Name and address of the Bidder)  
  
Acknowledgement of Receipt of Addenda \_\_\_\_ through \_\_\_\_.  
(Fill in appropriate Addendum numbers.)

***Note: Any Bidder who fails to acknowledge receipt of all Addenda on the outside of the Bid envelope shall be considered non-responsive and that Bid will not be opened.***

**3. Attach to outside of sealed opaque envelope containing bid a separate sealed envelope containing the following:**

- a. Bid Bond. (EJCDC C-430, 2018)
- b. North Dakota State Contractor's License or Certificate of Renewal.

***Note: any Bidder who fails to include both forms indicated above within the Bid Bond envelope shall be considered non-responsive and that Bid will not be opened.***

**4. Bids arriving after the established time will be returned unopened. Bids or Bid Bonds sent by facsimile or email will not be considered, nor will modifications sent by facsimile or email be considered.**

**5. If a Bid is sent by mail or other non-electronic delivery system, the sealed envelope contained the Bid and the associated attached Bid Security envelope shall be enclosed**



in a separate envelope, plainly marked on the outside with the notation "BID ENCLOSED"

6. A mailed bid shall be addressed to:

City of Beach  
Attn: Kim Gaugler, City Auditor  
153 Main Street, PO Box 278  
Beach, ND 58621

B. QuestCDN vBid System Option

1. Required Attachments to be completed and uploaded:

- a. Signed and Scanned Bid Form and Acknowledgement of Addenda.
- b. Bidder Qualifications Statement. (EJCDC C-451, 2018)
- c. MBE/WBE Subcontractor Solicitation Information; and
- d. SRF Certification Regarding Debarment, Suspension, and Other Responsibility Matters
- e. Bid Bond. (EJCDC C-430, 2018)
- f. North Dakota State Contractor's License or Certificate of Renewal.

*Note: any Bidder who fails to include the forms indicated above shall be considered non-responsive and that Bid will not be opened.*

2. Required Forms to be Completed:

- a. Signed and Scanned Bid Form for reference purposes; Complete online Bid Form shall govern over any discrepancies.

*Note: Any Bidder who fails to include all forms indicated above within the above time frame shall be considered non-responsive and that Bid will not be opened.*

**ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID**

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

and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

#### **ARTICLE 16—OPENING OF BIDS**

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

#### **ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

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

#### **ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT**

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 *Evaluation of Bids*

- A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.
- C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.

- D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.
  - E. **Deleted**
  - F. **Deleted**
- 18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

#### **ARTICLE 19—BONDS AND INSURANCE**

- 19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.
- 19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

#### **ARTICLE 20—SIGNING OF AGREEMENT**

- 20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

#### **ARTICLE 21—SALES AND USE TAXES**

- 21.01 OWNER is not exempt from State of North Dakota state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall be included in the Bid. Contracts to be assigned.

#### **ARTICLE 22—CONTRACTS TO BE ASSIGNED NOT USED**

#### **ARTICLE 23 – FEDERAL REQUIREMENTS NOT USED**

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# BID FORM FOR CONSTRUCTION CONTRACT

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

## ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

City of Beach  
153 Main Street, PO Box 278  
Beach, ND 58621

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

## ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

- A. In one opaque and sealed envelope labeled as described in Article 14 of C-200
  - 1. Completed Bid Form (EJCDC D-410, 2018)
  - 2. Bidder Qualifications Statement (EJCDC C-451, 2018)
  - 3. MBE/WBE Subcontractor Solicitation Information; and
  - 4. SRF Certification Regarding Debarment, Suspension, and Other Responsibility Matters.
- B. In second opaque and sealed envelope labeled as described in Article 14 of C-200
  - 1. Required Bid security;
  - 2. North Dakota State Contractor's License or Certificate of Renewal.

## ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

3.01 *Unit Price Bids*

- A. Bidder will perform the following Work at the indicated unit prices

UNIT PRICE BID

**CONTRACT NO. 1 – GENERAL CONSTRUCTION**

Ref.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE
1	Bonding and Insurance	1	l.s.		
2	Mobilization	1	l.s.		
3	Erosion Control	1	l.s.		
4	Traffic Control	1	l.s.		
5	Temporary Water Service	1	l.s.		
6	Reclaim and Salvage Bituminous Pavement	15062	s.y.		
7	Remove and Dispose Concrete Curb and Gutter	2600	l.f.		
8	Remove and Dispose Concrete Sidewalk	4825	s.f.		
9	Remove and Dispose Concrete Driveway	1653	s.f.		
10	Remove and Dispose Concrete Valley Gutter	3051	s.f.		
11	Remove and Salvage 4" of Topsoil	2186	s.y.		
12	Remove and Salvage 6" of Gravel	533	s.f.		
13	Bituminous Pavement (4.5")	13299	s.y.		
14	Street Crowning	15636	s.y.		
15	8" Street Base (Type A3, Class 5 Aggregate)	13439	s.y.		
16	Concrete Curb and Gutter	2642	l.f.		
17	4" Concrete Sidewalk	4855	s.f.		
18	6" Concrete Driveway	2024	s.f.		
19	6" Concrete Valley Gutter	2815	s.f.		

20	4" Top Soil	2185	s.y.		
21	Hydroseeding and Maintenance	2185	s.y.		
22	6" Gravel (parking lot/driveway restoration)	533	s.f.		
23	6" Asphalt Millings	2234	s.y.		
24	2" PVC Water Main (C-900 DR-25)	158	l.f.		
25	4" PVC Water Main (C-900 DR-25)	163	l.f.		
26	6" PVC Water Main (C-900 DR-25)	218	l.f.		
27	8" PVC Water Main (C-900 DR-25)	9712	l.f.		
28	1" Water Service with Curb Stop (Open Cut)	157	ea.		
29	1" Water Service with Meter Pit	1	ea.		
30	1" Water Service (Lead Line)	10	ea.		
31	8" DI MJ Tee	9	ea.		
32	8"x6" DI MJ Tee	18	ea.		
33	8"x4" DI MJ Tee	2	ea.		
34	8"x2" DI MJ Tee	1	ea.		
35	8"x6" DI MJ Reducer	3	ea.		
36	8"x4" DI MJ Reducer	1	ea.		
37	8" DI MJ 90 Bend	8	ea.		
38	8" DI MJ 45 Bend	1	ea.		
39	8"x8" DI Cross	5	ea.		
40	8"x4" DI Cross	1	ea.		
41	8" DI MJ Gate Valve and Box	35	ea.		
42	6" DI MJ Gate Valve and Box	14	ea.		
43	4" DI MJ Gate Valve and Box	1	ea.		

44	Fire Hydrant	11	ea.		
45	Connect to Existing Water Main	23	ea.		

B. Bidder acknowledges that:

1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.02 *Total Bid Price (Lump Sum and Unit Prices)*

Total Bid Price (Total of all Lump Sum and Unit Price Bids)	\$
---	----

**ARTICLE 4—DELETED**

**ARTICLE 5—DELETED**

**ARTICLE 6—TIME OF COMPLETION**

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 **Deleted**

6.03 **Deleted**

6.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

**ARTICLE 7—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA**

7.01 *Bid Acceptance Period*

- A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

7.02 *Instructions to Bidders*

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

7.03 *Receipt of Addenda*

- A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

Addendum Number	Addendum Date
-----------------	---------------




**ARTICLE 8—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS**

8.01 *Bidder’s Representations*

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

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
  - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
  - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
  - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
  - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

\_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Date: \_\_\_\_\_  
*(typed or printed)*

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

Attest: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Date: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

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

Bidder's Contact:

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Phone: \_\_\_\_\_

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

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

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

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## BID BOND (PENAL SUM FORM)

<b>Bidder</b> Name: <b>[Full formal name of Bidder]</b> Address <i>(principal place of business)</i> : <b>[Address of Bidder's principal place of business]</b>	<b>Surety</b> Name: <b>[Full formal name of Surety]</b> Address <i>(principal place of business)</i> : <b>[Address of Surety's principal place of business]</b>
<b>Owner</b> Name: <b>[Full formal name of Owner]</b> Address <i>(principal place of business)</i> : <b>[Address of Owner's principal place of business]</b>	<b>Bid</b> Project <i>(name and location)</i> : <b>[Owner project/contract name, and location of the project]</b>  Bid Due Date: <b>[Enter date bid is due]</b>
<b>Bond</b> Penal Sum: <b>[Amount]</b> Date of Bond: <b>[Date]</b>	
Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.	
Bidder	Surety
<i>(Full formal name of Bidder)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature) (Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<i>Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.</i>	

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

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

## QUALIFICATIONS STATEMENT

Prepared By



Endorsed By



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National Society of Professional Engineers  
1420 King Street, Alexandria, VA 22314-2794  
(703) 684-2882  
[www.nspe.org](http://www.nspe.org)

American Council of Engineering Companies  
1015 15th Street N.W., Washington, DC 20005  
(202) 347-7474  
[www.acec.org](http://www.acec.org)

American Society of Civil Engineers  
1801 Alexander Bell Drive, Reston, VA 20191-4400  
(800) 548-2723  
[www.asce.org](http://www.asce.org)

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**ARTICLE 1—GENERAL INFORMATION**

1.01 Provide contact information for the Business:

Legal Name of Business:			
Corporate Office			
Name:		Phone number:	
Title:		Email address:	
Business address of corporate office:			
Local Office			
Name:		Phone number:	
Title:		Email address:	
Business address of local office:			

1.02 Provide information on the Business’s organizational structure:

Form of Business:	<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Partnership <input type="checkbox"/> Corporation		
<input type="checkbox"/> Limited Liability Company <input type="checkbox"/> Joint Venture comprised of the following companies:			
	1.		
	2.		
	3.		
Provide a separate Qualification Statement for each Joint Venturer.			
Date Business was formed:		State in which Business was formed:	
Is this Business authorized to operate in the Project location?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Pending	

1.03 Identify all businesses that own Business in whole or in part (25% or greater), or that are wholly or partly (25% or greater) owned by Business:

Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			
Name of business:		Affiliation:	
Address:			

1.04 Provide information regarding the Business’s officers, partners, and limits of authority.

Name:		Title:	
Authorized to sign contracts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Limit of Authority:	\$
Name:		Title:	
Authorized to sign contracts:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Limit of Authority:	\$
Name:		Title:	

**ARTICLE 2—LICENSING**

2.01 Provide information regarding licensure for Business:

Name of License:			
Licensing Agency:			
License No:		Expiration Date:	
Name of License:			
Licensing Agency:			
License No:		Expiration Date:	

**ARTICLE 3—DIVERSE BUSINESS CERTIFICATIONS**

3.01 Provide information regarding Business’s Diverse Business Certification, if any. Provide evidence of current certification.

Certification	Certifying Agency	Certification Date
<input type="checkbox"/> Disadvantaged Business Enterprise		
<input type="checkbox"/> Minority Business Enterprise		
<input type="checkbox"/> Woman-Owned Business Enterprise		
<input type="checkbox"/> Small Business Enterprise		
<input type="checkbox"/> Disabled Business Enterprise		
<input type="checkbox"/> Veteran-Owned Business Enterprise		
<input type="checkbox"/> Service-Disabled Veteran-Owned Business		
<input type="checkbox"/> HUBZone Business (Historically Underutilized) Business		
<input type="checkbox"/> Other		
<input type="checkbox"/> None		

**ARTICLE 4—SAFETY**

4.01 Provide information regarding Business’s safety organization and safety performance.

Name of Business’s Safety Officer:		
Safety Certifications		
Certification Name	Issuing Agency	Expiration

4.02 Provide Worker’s Compensation Insurance Experience Modification Rate (EMR), Total Recordable Frequency Rate (TRFR) for incidents, and Total Number of Recorded Manhours (MH) for the last 3 years and the EMR, TRFR, and MH history for the last 3 years of any proposed Subcontractor(s) that will provide Work valued at 10% or more of the Contract Price. Provide documentation of the EMR history for Business and Subcontractor(s).

Year									
Company	EMR	TRFR	MH	EMR	TRFR	MH	EMR	TRFR	MH

**ARTICLE 5—FINANCIAL**

5.01 Provide information regarding the Business’s financial stability. Provide the most recent audited financial statement, and if such audited financial statement is not current, also provide the most current financial statement.

Financial Institution:		
Business address:		
Date of Business’s most recent financial statement:		<input type="checkbox"/> Attached
Date of Business’s most recent audited financial statement:		<input type="checkbox"/> Attached
Financial indicators from the most recent financial statement		
Contractor’s Current Ratio (Current Assets ÷ Current Liabilities)		
Contractor’s Quick Ratio ((Cash and Cash Equivalents + Accounts Receivable + Short Term Investments) ÷ Current Liabilities)		

**ARTICLE 6—SURETY INFORMATION**

6.01 Provide information regarding the surety company that will issue required bonds on behalf of the Business, including but not limited to performance and payment bonds.

Surety Name:			
Surety is a corporation organized and existing under the laws of the state of:			
Is surety authorized to provide surety bonds in the Project location?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Is surety listed in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” published in Department Circular 570 (as amended) by the Bureau of the Fiscal Service, U.S. Department of the Treasury? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

**ARTICLE 7—INSURANCE**

7.01 Provide information regarding Business’s insurance company(s), including but not limited to its Commercial General Liability carrier. Provide information for each provider.

Name of insurance provider, and type of policy (CLE, auto, etc.):			
Insurance Provider	Type of Policy (Coverage Provided)		
Are providers licensed or authorized to issue policies in the Project location?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Does provider have an A.M. Best Rating of A-VII or better?			<input type="checkbox"/> Yes <input type="checkbox"/> No
Mailing Address (principal place of business):			
Physical Address (principal place of business):			
Phone (main):		Phone (claims):	

**ARTICLE 8—CONSTRUCTION EXPERIENCE**

8.01 Provide information that will identify the overall size and capacity of the Business.

Average number of current full-time employees:	
Estimate of revenue for the current year:	
Estimate of revenue for the previous year:	

8.02 Provide information regarding the Business’s previous contracting experience.

Years of experience with projects like the proposed project:		
As a general contractor:		As a joint venturer:
Has Business, or a predecessor in interest, or an affiliate identified in Paragraph 1.03:		
Been disqualified as a bidder by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been barred from contracting by any local, state, or federal agency within the last 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been released from a bid in the past 5 years? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Defaulted on a project or failed to complete any contract awarded to it? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Refused to construct or refused to provide materials defined in the contract documents or in a change order? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Been a party to any currently pending litigation or arbitration? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Provide full details in a separate attachment if the response to any of these questions is Yes.		

8.03 List all projects currently under contract in Schedule A and provide indicated information.

8.04 List a minimum of three and a maximum of six projects completed in the last 5 years in Schedule B and provide indicated information to demonstrate the Business’s experience with projects similar in type and cost of construction.

8.05 In Schedule C, provide information on key individuals whom Business intends to assign to the Project. Provide resumes for those individuals included in Schedule C. Key individuals include the Project Manager, Project Superintendent, Quality Manager, and Safety Manager. Resumes may be provided for Business’s key leaders as well.

**ARTICLE 9—REQUIRED ATTACHMENTS**

9.01 Provide the following information with the Statement of Qualifications:

- A. If Business is a Joint Venture, separate Qualifications Statements for each Joint Venturer, as required in Paragraph 1.02.
- B. Diverse Business Certifications if required by Paragraph 3.01.
- C. Certification of Business’s safety performance if required by Paragraph 4.02.
- D. Financial statements as required by Paragraph 5.01.

- E. Attachments providing additional information as required by Paragraph 8.02.
- F. Schedule A (Current Projects) as required by Paragraph 8.03.
- G. Schedule B (Previous Experience with Similar Projects) as required by Paragraph 8.04.
- H. Schedule C (Key Individuals) and resumes for the key individuals listed, as required by Paragraph 8.05.
- I. Additional items as pertinent.

This Statement of Qualifications is offered by:

Business: \_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Date: \_\_\_\_\_  
*(date signed)*

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

Attest: \_\_\_\_\_  
*(individual's signature)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Designated Representative:

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

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

Phone: \_\_\_\_\_

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

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**Schedule A—Current Projects**

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
<hr/>					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					
<hr/>					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

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**Schedule B—Previous Experience with Similar Projects**

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

**Schedule B—Previous Experience with Similar Projects**

Name of Organization					
Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

Project Owner			Project Name		
General Description of Project					
Project Cost			Date Project		
Key Project Personnel	Project Manager	Project Superintendent	Safety Manager	Quality Control Manager	
Name					
Reference Contact Information (listing names indicates approval to contacting the names individuals as a reference)					
	Name	Title/Position	Organization	Telephone	Email
Owner					
Designer					
Construction Manager					

**Schedule C—Key Individuals**

<b>Project Manager</b>			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
<b>Project Superintendent</b>			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

<b>Safety Manager</b>			
Name of individual			
Years of experience as project manager			
Years of experience with this organization			
Number of similar projects as project manager			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	
<b>Quality Control Manager</b>			
Name of individual			
Years of experience as project superintendent			
Years of experience with this organization			
Number of similar projects as project superintendent			
Number of similar projects in other positions			
Current Project Assignments			
Name of assignment		Percent of time used for this project	Estimated project completion date
Reference Contact Information (listing names indicates approval to contact named individuals as a reference)			
Name		Name	
Title/Position		Title/Position	
Organization		Organization	
Telephone		Telephone	
Email		Email	
Project		Project	
Candidate's role on project		Candidate's role on project	

## NOTICE OF AWARD

Date of Issuance:

Owner:

Owner's Project No.:

Engineer:

Engineer's Project No.:

Project:

Contract Name:

Bidder:

Bidder's Address:

You are notified that Owner has accepted your Bid dated **[date]** for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

**[Describe Work, alternates, or sections of Work awarded]**

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

**[Number of copies sent]** unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner **[number of copies sent]** counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): **[Describe other conditions that require Successful Bidder's compliance]**

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

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

Owner: **[Full formal name of Owner]**

By (*signature*): \_\_\_\_\_

Name (*printed*): \_\_\_\_\_

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

Copy: Engineer



# AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **City of Beach** (“Owner”) and **[name of contracting entity]** (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

## ARTICLE 1—WORK

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

Watermain and services installation. The project shall include reconstructing two blocks of pavement, valves and hydrants removal and replacement, sidewalk removal and replacement, curb and gutter removal and replacement, bituminous pavement removal and replacement, landscaping and seeding.

## ARTICLE 2—THE PROJECT

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

**Beach 2025 Street and Utility Project**

## ARTICLE 3—ENGINEER

3.01 The Owner has retained **AE2S** (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by **Engineer**.

## ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Dates*

A. The Work will be substantially complete on or before August 31, 2026, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before September 30, 2026.

B. If during the performance of this Agreement, the Contractor, using best efforts and through no fault of the Contractor, is unable to secure the delivery of certain materials necessary to complete the Work in accordance with the Contract Times, the Contractor may request an

extension in Contract Times. Such a request must be accompanied by documentation reasonably acceptable to Owner stating the nature of the delay and the anticipated length of delay in days, such as a letter from the Contractor's vendor. In no event will Contractor be entitled to additional compensation from the Owner associated with such an extension of Contract Times. In any event, restoration of all disturbed bituminous and concrete surfaces, to full depth, must be completed in accordance with the above-stated Contract Times.

#### 4.04 *Milestones*

- A. Parts of the Work must be substantially completed on or before the following Milestone(s):
  - 1. Milestone 1: All underground utilities on Main Street and Central Ave to the nearest gate valve on each adjoining block: October 31, 2025.

#### 4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
  - 1. *Substantial Completion*: Contractor shall pay Owner \$2,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.
  - 2. *Completion of Remaining Work*: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$2,000 for each day that expires after such time until the Work is completed and ready for final payment.
  - 3. *Milestones*: Contractor shall pay Owner \$2,000 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.
  - 4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

#### 4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in

Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

**ARTICLE 5—CONTRACT PRICE**

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

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
				\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- D. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

**ARTICLE 6—PAYMENT PROCEDURES**

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

#### 6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on a monthly basis during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
  - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.
    - a. **95** percent of the value of the Work completed (with the balance being retainage).
    - b. **95** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to **100** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **200** percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

#### 6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

#### 6.04 *Consent of Surety*

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

#### 6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of **5** percent per annum.

### **ARTICLE 7—CONTRACT DOCUMENTS**

#### 7.01 *Contents*

- A. The Contract Documents consist of all of the following:
  - 1. This Agreement.
  - 2. Bonds:
    - a. Performance bond (together with power of attorney).
    - b. Payment bond (together with power of attorney).
  - 3. General Conditions.
  - 4. Supplementary Conditions.

5. Specifications as listed in the table of contents of the project manual (copy of list attached).
6. Drawings (not attached but incorporated by reference) consisting of **41** sheets with each sheet bearing the following general title: **Beach Street and Utility Improvement**
7. Drawings listed on the attached sheet index.
8. Addenda (numbers **[number]** to **[number]**, inclusive).
10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
  - a. Notice to Proceed.
  - b. Work Change Directives.
  - c. Change Orders.
  - d. Field Orders.
  - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

## **ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS**

### **8.01 Contractor's Representations**

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
  1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
  2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
  3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
  4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
  5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

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

#### 8.02 *Contractor's Certifications*

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

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

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

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

Contractor:

\_\_\_\_\_  
*(typed or printed name of organization)*

\_\_\_\_\_  
*(typed or printed name of organization)*

By: \_\_\_\_\_  
*(individual's signature)*

By: \_\_\_\_\_  
*(individual's signature)*

Date: \_\_\_\_\_  
*(date signed)*

Date: \_\_\_\_\_  
*(date signed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

*(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*

Attest: \_\_\_\_\_  
*(individual's signature)*

Attest: \_\_\_\_\_  
*(individual's signature)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address for giving notices:

Address for giving notices:

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

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

Designated Representative:

Designated Representative:

Name: \_\_\_\_\_  
*(typed or printed)*

Name: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Title: \_\_\_\_\_  
*(typed or printed)*

Address:

Address:

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

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

Phone: \_\_\_\_\_

Phone: \_\_\_\_\_

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

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

*(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*

License No.: \_\_\_\_\_  
*(where applicable)*

State: \_\_\_\_\_



## NOTICE TO PROCEED

Owner: \_\_\_\_\_ Owner's Project No.: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Engineer's Project No.: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: \_\_\_\_\_  
Contract Name: \_\_\_\_\_  
Effective Date of Contract: \_\_\_\_\_

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on **[date Contract Times are to start]** pursuant to Paragraph 4.01 of the General Conditions.

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

In accordance with the Agreement: **[Select one of the following two alternatives, insert dates or number of days, and delete the other alternative.]**

The date by which Substantial Completion must be achieved is **[date for Substantial Completion, from Agreement]**, and the date by which readiness for final payment must be achieved is **[date for readiness, from Agreement]**.

**[or]**

The number of days to achieve Substantial Completion is **[number of days, from Agreement]** from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of **[date, calculated from commencement date above]**; and the number of days to achieve readiness for final payment is **[number of days, from Agreement]** from the commencement date of the Contract Times, resulting in a date for readiness for final payment of **[date, calculated from commencement date above]**.

Before starting any Work at the Site, Contractor must comply with the following:

**[Note any access limitations, security procedures, or other restrictions]**

Owner:           **[Full formal name of Owner]**            
By *(signature)*: \_\_\_\_\_  
Name *(printed)*: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date Issued: \_\_\_\_\_  
Copy: Engineer

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## PERFORMANCE BOND

<p><b>Contractor</b></p> <p>Name: <b>[Full formal name of Contractor]</b></p> <p>Address <i>(principal place of business)</i>:  <b>[Address of Contractor's principal place of business]</b></p>	<p><b>Surety</b></p> <p>Name: <b>[Full formal name of Surety]</b></p> <p>Address <i>(principal place of business)</i>:  <b>[Address of Surety's principal place of business]</b></p>
<p><b>Owner</b></p> <p>Name: <b>[Full formal name of Owner]</b></p> <p>Mailing address <i>(principal place of business)</i>:  <b>[Address of Owner's principal place of business]</b></p>	<p><b>Contract</b></p> <p>Description <i>(name and location)</i>:  <b>[Owner's project/contract name, and location of the project]</b></p> <p>Contract Price: <b>[Amount from Contract]</b></p> <p>Effective Date of Contract: <b>[Date from Contract]</b></p>
<p><b>Bond</b></p> <p>Bond Amount: <b>[Amount]</b></p> <p>Date of Bond: <b>[Date]</b></p> <p><i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:  <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 16</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

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

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

statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

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

## PAYMENT BOND

<p><b>Contractor</b></p> <p>Name: <b>[Full formal name of Contractor]</b></p> <p>Address <i>(principal place of business)</i>:  <b>[Address of Contractor's principal place of business]</b></p>	<p><b>Surety</b></p> <p>Name: <b>[Full formal name of Surety]</b></p> <p>Address <i>(principal place of business)</i>:  <b>[Address of Surety's principal place of business]</b></p>
<p><b>Owner</b></p> <p>Name: <b>[Full formal name of Owner]</b></p> <p>Mailing address <i>(principal place of business)</i>:  <b>[Address of Owner's principal place of business]</b></p>	<p><b>Contract</b></p> <p>Description <i>(name and location)</i>:  <b>[Owner's project/contract name, and location of the project]</b></p> <p>Contract Price: <b>[Amount, from Contract]</b></p> <p>Effective Date of Contract: <b>[Date, from Contract]</b></p>
<p><b>Bond</b></p> <p>Bond Amount: <b>[Amount]</b></p> <p>Date of Bond: <b>[Date]</b></p> <p><i>(Date of Bond cannot be earlier than Effective Date of Contract)</i></p> <p>Modifications to this Bond form:  <input type="checkbox"/> None <input type="checkbox"/> See Paragraph 18</p>	
<p>Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.</p>	
Contractor as Principal	Surety
<i>(Full formal name of Contractor)</i>	<i>(Full formal name of Surety) (corporate seal)</i>
By: _____ <i>(Signature)</i>	By: _____ <i>(Signature)(Attach Power of Attorney)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
Attest: _____ <i>(Signature)</i>	Attest: _____ <i>(Signature)</i>
Name: _____ <i>(Printed or typed)</i>	Name: _____ <i>(Printed or typed)</i>
Title: _____	Title: _____
<p><i>Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.</i></p>	

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



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

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

# CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: \_\_\_\_\_ Owner's Project No.: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Engineer's Project No.: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: \_\_\_\_\_  
Contract Name: \_\_\_\_\_

This  Preliminary  Final Certificate of Substantial Completion applies to:

All Work  The following specified portions of the Work:

**[Describe the portion of the work for which Certificate of Substantial Completion is issued]**

Date of Substantial Completion: **[Enter date, as determined by Engineer]**

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner's Responsibilities:  None  As follows:

**[List amendments to Owner's Responsibilities]**

Amendments to Contractor's Responsibilities:  None  As follows:

**[List amendments to Contractor's Responsibilities]**

The following documents are attached to and made a part of this Certificate:

**[List attachments such as punch list; other documents]**

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By *(signature)*: \_\_\_\_\_

Name *(printed)*: \_\_\_\_\_

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

This page intentionally left blank

**NOTICE OF ACCEPTABILITY OF WORK**

Owner: \_\_\_\_\_ Owner’s Project No.: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Engineer’s Project No.: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Contractor’s Project No.: \_\_\_\_\_  
Project: \_\_\_\_\_  
Contract Name: \_\_\_\_\_  
Notice Date: \_\_\_\_\_ Effective Date of the Construction Contract: \_\_\_\_\_

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract’s Contract Documents (“Contract Documents”) and of the Agreement between Owner and Engineer for Professional Services dated **[date of professional services agreement]** (“Owner-Engineer Agreement”). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. This Notice reflects and is an expression of the Engineer’s professional opinion.
3. This Notice has been prepared to the best of Engineer’s knowledge, information, and belief as of the Notice Date.
4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor’s Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer’s knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.
5. This Notice is not a guarantee or warranty of Contractor’s performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.
6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner’s reservations of rights with respect to completion and final payment.

Engineer

By *(signature)*: \_\_\_\_\_  
Name *(printed)*: \_\_\_\_\_  
Title: \_\_\_\_\_

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
  3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  5. *Bidder*—An individual or entity that submits a Bid to Owner.
  6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
  7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
  8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
  9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
  10. *Claim*
    - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
  - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
  - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.
21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the

recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
  - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
  - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
  - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.
32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.
42. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.



43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
46. *Technical Data*
- a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
  - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
  - c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.
47. *Underground Facilities*—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

## 1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.
- C. *Day:* The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
  2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2—PRELIMINARY MATTERS**

### **2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance***

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

### **2.03 *Before Starting Construction***

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work

into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.
  - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

## ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

### 3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
  - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
  - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

### 3.02 *Reference Standards*

- A. *Standards Specifications, Codes, Laws and Regulations*
  - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  - 2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility

inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

#### B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
  - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

### 3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

### 3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers shall not:
  - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
  - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

## **ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

### 4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

### 4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

### 4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the

established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

#### 4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
  - 1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
  - 2. Abnormal weather conditions;
  - 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
  - 4. Acts of war or terrorism.



- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
  2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
  3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
  2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
  3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
  4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
  5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.
- Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.
- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.
- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

## **ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS**

### **5.01 *Availability of Lands***

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

## 5.02 *Use of Site and Other Areas*

### A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
  2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.
- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.
  - C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment

and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

### 5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
3. Technical Data contained in such reports and drawings.

- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

#### 5.04 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
  2. is of such a nature as to require a change in the Drawings or Specifications;
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in

Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
  - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
  - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
- a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;
  - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
  - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions:* Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

#### 5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
  2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
  4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
  5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
  2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
  3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
  4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
  - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and
  - c. Contractor gave the notice required in Paragraph 5.05.B.
2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
  3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
  4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

#### 5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures

- of construction to be employed by Contractor, and safety precautions and programs incident thereto;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
- H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special



conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

## **ARTICLE 6—BONDS AND INSURANCE**

### **6.01 *Performance, Payment, and Other Bonds***

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.
- B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.
- C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or

Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.
- E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.
- F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.
- G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.
- H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

#### 6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.
- D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant exclusions, and evidence of insurance required to be purchased and maintained by

- Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.
- E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.
  - F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
  - G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner's option, may purchase and maintain Owner's own liability insurance. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.
  - H. Contractor shall require:
    - 1. Subcontractors to purchase and maintain worker's compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor's liability policies) on each Subcontractor's commercial general liability insurance policy; and
    - 2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.
  - I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
  - J. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner's termination rights under Article 16.
  - K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.

- L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.
- M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor's liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.
- N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 *Contractor's Insurance*

- A. *Required Insurance:* Contractor shall purchase and maintain Worker's Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.
- B. *General Provisions:* The policies of insurance required by this Paragraph 6.03 as supplemented must:
  - 1. include at least the specific coverages required;
  - 2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
  - 3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
  - 4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
  - 5. include all necessary endorsements to support the stated requirements.
- C. *Additional Insureds:* The Contractor's commercial general liability, automobile liability, employer's liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:
  - 1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
  - 2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
  - 3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);

4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor's acts or omissions, or the acts and omissions of those working on Contractor's behalf, in the performance of Contractor's operations.

#### 6.04 *Builder's Risk and Other Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the Work's full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder's risk insurance are set forth in the Supplementary Conditions.
- B. *Property Insurance for Facilities of Owner Where Work Will Occur*: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder's risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.
- C. *Property Insurance for Substantially Complete Facilities*: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder's risk insurance. The builder's risk insurance may terminate upon written confirmation of Owner's procurement of such property insurance.
- D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder's risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.
- E. *Insurance of Other Property; Additional Insurance*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor's expense.

#### 6.05 *Property Losses; Subrogation*

- A. The builder's risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against

Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder's risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.
  2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner's existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer's rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.
1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.
- C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.
- D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder's risk insurance, installation floater, and any other property insurance applicable to the Work.

6.06 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

#### 7.04 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
  - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that the proposed item:
      - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;



- 2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
  - 3) has a proven record of performance and availability of responsive service; and
  - 4) is not objectionable to Owner.
- b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
  - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

#### 7.06 *Substitutes*

- A. *Contractor's Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.
  2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
  - a. will certify that the proposed substitute item will:
    - 1) perform adequately the functions and achieve the results called for by the general design;
    - 2) be similar in substance to the item specified; and
    - 3) be suited to the same use as the item specified.
  - b. will state:
    - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
    - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
    - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
  - c. will identify:
    - 1) all variations of the proposed substitute item from the item specified; and
    - 2) available engineering, sales, maintenance, repair, and replacement services.
  - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 7.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 7.11 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

#### 7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

### 7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.
- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

- 1. Before submitting a Shop Drawing or Sample, Contractor shall:
  - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determine and verify:
    - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
    - 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
    - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
  - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
- 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
1. *Shop Drawings*
    - a. Contractor shall submit the number of copies required in the Specifications.
    - b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.
  2. *Samples*
    - a. Contractor shall submit the number of Samples required in the Specifications.
    - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.
  3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Engineer's Review of Shop Drawings and Samples*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will



document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

*D. Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

*E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
  - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
  - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
  - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

- d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.
  2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

**7.17 Contractor's General Warranty and Guarantee**

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
  2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:
1. Observations by Engineer;
  2. Recommendation by Engineer or payment by Owner of any progress or final payment;
  3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. Use or occupancy of the Work or any part thereof by Owner;
  5. Any review and approval of a Shop Drawing or Sample submittal;
  6. The issuance of a notice of acceptability by Engineer;
  7. The end of the correction period established in Paragraph 15.08;
  8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.

- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
  - 1. Checking for conformance with the requirements of this Paragraph 7.19;
  - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
  - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

## **ARTICLE 8—OTHER WORK AT THE SITE**

### **8.01 *Other Work***

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

#### 8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
  - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
  - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
  - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
  - 1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
  - 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

## **ARTICLE 9—OWNER'S RESPONSIBILITIES**

### **9.01 *Communications to Contractor***

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### **9.02 *Replacement of Engineer***

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

### **9.03 *Furnish Data***

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### **9.04 *Pay When Due***

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

- 9.05 *Lands and Easements; Reports, Tests, and Drawings*
- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
  - B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
  - C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.
- 9.06 *Insurance*
- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.
- 9.07 *Change Orders*
- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.
- 9.08 *Inspections, Tests, and Approvals*
- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.
- 9.09 *Limitations on Owner's Responsibilities*
- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- 9.10 *Undisclosed Hazardous Environmental Condition*
- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.
- 9.11 *Evidence of Financial Arrangements*
- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).
- 9.12 *Safety Programs*
- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
  - B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

## ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

### 10.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

### 10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### 10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.
- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

### 10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.



E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

## ARTICLE 11—CHANGES TO THE CONTRACT

### 11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

### 11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
  - 1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
  - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
  - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
  - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

### 11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

- B. If Owner has issued a Work Change Directive and:
  - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
  - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

#### 11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

#### 11.05 *Owner-Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

#### 11.06 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

#### 11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
  2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
  3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will be determined as follows:
1. A mutually acceptable fixed fee; or
  2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
    - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 percent;
    - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;
    - d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
    - e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
    - f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

#### 11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

#### 11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

#### B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
  - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
  - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change

Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision*: Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion*: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

#### 11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

### ARTICLE 12—CLAIMS

#### 12.01 *Claims*

- A. *Claims Process*: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
  1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
  2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
  3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
  4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge

and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

- C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
  - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
  - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
  - 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

## **ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **13.01 *Cost of the Work***

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
  - 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.
  2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
  4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
  5. Other costs consisting of the following:
    - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
    - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are



consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
- 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
  - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
  - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
    - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
    - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
- 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

- E. *Documentation and Audit:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

### 13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:* Contractor agrees that:
  - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
  - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance:* Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

### 13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision

thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
  - a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  - b. Contractor's unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.
2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

**ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  3. by manufacturers of equipment furnished under the Contract Documents;
  4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
  5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,

losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

#### 14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

#### 14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

#### 14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,

or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

**14.07 Owner May Correct Defective Work**

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

**ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

**15.01 Progress Payments**

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments*
  - 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
  - 2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation

establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
  - a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
  - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.



4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
  - a. to supervise, direct, or control the Work;
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
  - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
  - a. the Work is defective, requiring correction or replacement;
  - b. the Contract Price has been reduced by Change Orders;
  - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
  - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

**D. *Payment Becomes Due***

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

**E. *Reductions in Payment by Owner***

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
  - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

- b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
  - c. Contractor has failed to provide and maintain required bonds or insurance;
  - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
  - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
  - f. The Work is defective, requiring correction or replacement;
  - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
  - h. The Contract Price has been reduced by Change Orders;
  - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
  - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
  - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens; or
  - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
  3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

#### 15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

#### 15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time

submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without

significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.
2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder's risk or other property insurance.

#### 15.05 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 15.06 *Final Payment*

##### A. *Application for Payment*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
2. The final Application for Payment must be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents;
  - b. consent of the surety, if any, to final payment;
  - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

- d. a list of all duly pending Change Proposals and Claims; and
  - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.
- C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.
- E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

#### 15.07 *Waiver of Claims*

- A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,

appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

#### 15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
  - 1. correct the defective repairs to the Site or such adjacent areas;
  - 2. correct such defective Work;
  - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
  - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.
- D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

### **16.01 *Owner May Suspend Work***

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

### **16.02 *Owner May Terminate for Cause***

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
  - 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
  - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
  - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
  - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
  - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
  - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,

- attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
  - G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

#### 16.03 *Owner May Terminate for Convenience*

- A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
  - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

#### 16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The



provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

## **ARTICLE 17—FINAL RESOLUTION OF DISPUTES**

### **17.01 *Methods and Procedures***

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
  2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
  2. agree with the other party to submit the dispute to another dispute resolution process; or
  3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

## **ARTICLE 18—MISCELLANEOUS**

### **18.01 *Giving Notice***

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
  2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
  3. by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line.

### **18.02 *Computation of Times***

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

## SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

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# SUPPLEMENTARY CONDITIONS OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, "Paragraph SC-4.05."

## ARTICLE 1—DEFINITIONS AND TERMINOLOGY

No suggested Supplementary Conditions in this Article.

## ARTICLE 2—PRELIMINARY MATTERS

### 2.01 *Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01.B. and C. in their entirety and insert the following in their place:

- B. *Evidence of Contractor's Insurance:* When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies (including all endorsements, and identification of applicable self-insured retentions and deductibles) of insurance required to be provided by Contractor in this Contract. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- C. *Evidence of Owner's Insurance:* After receipt from Contractor of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner in this Contract (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

### 2.02 *Copies of Documents*

SC-2.02 Amend the first sentence of Paragraph 2.02.A. to read as follows:

Owner shall furnish to Contractor **up to three** printed copies of the Contract Documents (including one fully signed counterpart of the Agreement), and **one copy** in electronic portable document format (PDF).

SC-2.02 Delete Paragraph 2.02.A in its entirety and insert the following new paragraph in its place:

- A. Owner shall furnish to Contractor **up to three** printed copies of conformed Contract Documents incorporating and integrating all Addenda and any amendments negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

## 2.06 *Electronic Transmittals*

SC-2.06 Delete Paragraphs 2.06.B and 2.06.C in their entirety and insert the following in their place:

B. *Electronic Documents Protocol*: The parties shall conform to the following provisions in Paragraphs 2.06.B and 2.06.C, together referred to as the Electronic Documents Protocol (“EDP” or “Protocol”) for exchange of electronic transmittals.

### 1. *Basic Requirements*

- a. To the fullest extent practical, the parties agree to and will transmit and accept Electronic Documents in an electronic or digital format using the procedures described in this Protocol. Use of the Electronic Documents and any information contained therein is subject to the requirements of this Protocol and other provisions of the Contract.
- b. The contents of the information in any Electronic Document will be the responsibility of the transmitting party.
- c. Electronic Documents as exchanged by this Protocol may be used in the same manner as the printed versions of the same documents that are exchanged using non-electronic format and methods, subject to the same governing requirements, limitations, and restrictions, set forth in the Contract Documents.
- d. Except as otherwise explicitly stated herein, the terms of this Protocol will be incorporated into any other agreement or subcontract between a party and any third party for any portion of the Work on the Project, or any Project-related services, where that third party is, either directly or indirectly, required to exchange Electronic Documents with a party or with Engineer. Nothing herein will modify the requirements of the Contract regarding communications between and among the parties and their subcontractors and consultants.
- e. When transmitting Electronic Documents, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the receiving party’s use of software application packages, operating systems, or computer hardware differing from those established in this Protocol.
- f. Nothing herein negates any obligation 1) in the Contract to create, provide, or maintain an original printed record version of Drawings and Specifications, signed and sealed according to applicable Laws and Regulations; 2) to comply with any applicable Law or Regulation governing the signing and sealing of design documents or the signing and electronic transmission of any other documents; or 3) to comply with the notice requirements of Paragraph 18.01 of the General Conditions.

### 2. *System Infrastructure for Electronic Document Exchange*

- a. Each party will provide hardware, operating system(s) software, internet, e-mail, and large file transfer functions (“System Infrastructure”) at its own cost and sufficient for complying with the EDP requirements. With the exception of minimum standards set forth in this EDP, and any explicit system requirements specified by attachment to this EDP, it is the obligation of each party to determine, for itself, its own System Infrastructure.

- 1) The maximum size of an email attachment for exchange of Electronic Documents under this EDP is **20 MB**. Attachments larger than that may be exchanged using large file transfer functions or physical media.
  - 2) Each Party assumes full and complete responsibility for any and all of its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, or otherwise enabling its System Infrastructure, including operating systems and software, for use with respect to this EDP.
- b. Each party is responsible for its own system operations, security, back-up, archiving, audits, printing resources, and other Information Technology (“IT”) for maintaining operations of its System Infrastructure during the Project, including coordination with the party’s individual(s) or entity responsible for managing its System Infrastructure and capable of addressing routine communications and other IT issues affecting the exchange of Electronic Documents.
  - c. Each party will operate and maintain industry-standard, industry-accepted, ISO-standard, commercial-grade security software and systems that are intended to protect the other party from: software viruses and other malicious software like worms, trojans, adware; data breaches; loss of confidentiality; and other threats in the transmission to or storage of information from the other parties, including transmission of Electronic Documents by physical media such as CD/DVD/flash drive/hard drive. To the extent that a party maintains and operates such security software and systems, it shall not be liable to the other party for any breach of system security.
  - d. In the case of disputes, conflicts, or modifications to the EDP required to address issues affecting System Infrastructure, the parties shall cooperatively resolve the issues; but, failing resolution, the Owner is authorized to make and require reasonable and necessary changes to the EDP to effectuate its original intent. If the changes cause additional cost or time to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in price or time under the appropriate process in the Contract.
  - e. Each party is responsible for its own back-up and archive of documents sent and received during the term of the contract under this EDP, unless this EDP establishes a Project document archive, either as part of a mandatory Project website or other communications protocol, upon which the parties may rely for document archiving during the specified term of operation of such Project document archive. Further, each party remains solely responsible for its own post-Project back-up and archive of Project documents after the term of the Contract, or after termination of the Project document archive, if one is established, for as long as required by the Contract and as each party deems necessary for its own purposes.
  - f. If a receiving party receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving party will advise the sending party of the incomplete transmission.
  - g. The parties will bring any non-conforming Electronic Documents into compliance with the EDP. The parties will attempt to complete a successful transmission of the

Electronic Document or use an alternative delivery method to complete the communication.

C. *Software Requirements for Electronic Document Exchange; Limitations*

1. Each party will acquire the software and software licenses necessary to create and transmit Electronic Documents and to read and to use any Electronic Documents received from the other party (and if relevant from third parties), using the software formats required in this section of the EDP.
  - a. Prior to using any updated version of the software required in this section for sending Electronic Documents to the other party, the originating party will first notify and receive concurrence from the other party for use of the updated version or adjust its transmission to comply with this EDP.
2. The parties agree not to intentionally edit, reverse engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes any Electronic Document or information contained therein that was transmitted in a software data format, including Portable Document Format (PDF), intended by sender not to be modified, unless the receiving party obtains the permission of the sending party or is citing or quoting excerpts of the Electronic Document for Project purposes.
3. Software and data formats for exchange of Electronic Documents will conform to the requirements set forth in Exhibit A to this EDP, including software versions, if listed.

SC-2.06 Supplement Paragraph 2.06 of the General Conditions by adding the following paragraph:

D. *Requests by Contractor for Electronic Documents in Other Formats*

1. Release of any Electronic Document versions of the Project documents in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be at the sole discretion of the Owner.
2. To extent determined by Owner, in its sole discretion, to be prudent and necessary, release of Electronic Documents versions of Project documents and other Project information requested by Contractor ("Request") in formats other than those identified in the Electronic Documents Protocol (if any) or elsewhere in the Contract will be subject to the provisions of the Owner's response to the Request, and to the following conditions to which Contractor agrees:
  - a. The content included in the Electronic Documents created by Engineer and covered by the Request was prepared by Engineer as an internal working document for Engineer's purposes solely, and is being provided to Contractor on an "AS IS" basis without any warranties of any kind, including, but not limited to any implied warranties of fitness for any purpose. As such, Contractor is advised and acknowledges that the content may not be suitable for Contractor's application, or may require substantial modification and independent verification by Contractor. The content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other devices that may affect subsequent reuse.
  - b. Electronic Documents containing text, graphics, metadata, or other types of data that are provided by Engineer to Contractor under the request are only for

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convenience of Contractor. Any conclusion or information obtained or derived from such data will be at the Contractor's sole risk and the Contractor waives any claims against Engineer or Owner arising from use of data in Electronic Documents covered by the Request.

- c. Contractor shall indemnify and hold harmless Owner and Engineer and their subconsultants from all claims, damages, losses, and expenses, including attorneys' fees and defense costs arising out of or resulting from Contractor's use, adaptation, or distribution of any Electronic Documents provided under the Request.
  - d. Contractor agrees not to sell, copy, transfer, forward, give away or otherwise distribute this information (in source or modified file format) to any third party without the direct written authorization of Engineer, unless such distribution is specifically identified in the Request and is limited to Contractor's subcontractors. Contractor warrants that subsequent use by Contractor's subcontractors complies with all terms of the Contract Documents and Owner's response to Request.
3. In the event that Owner elects to provide or directs the Engineer to provide to Contractor any Contractor-requested Electronic Document versions of Project information that is not explicitly identified in the Contract Documents as being available to Contractor, the Owner shall be reimbursed by Contractor on an hourly basis (at \$[number] per hour) for any engineering costs necessary to create or otherwise prepare the data in a manner deemed appropriate by Engineer.

### **ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

#### 3.01 *Intent*

SC-3.01 Delete Paragraph 3.01.C in its entirety.

### **ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK**

SC-4.01.A – Delete the last sentence of paragraph.

#### 4.05 *Delays in Contractor's Progress*

SC-4.05.C.5.a – Add the following at the end of this paragraph:

Extreme or unusual weather that is typical for a given region, elevation, or season should not be considered abnormal weather conditions. Requests for time extensions due to abnormal weather conditions will be submitted to the Engineer within five days of the end of the abnormal weather condition event. It is the responsibility of the Contractor to provide the information listed in SC-4.05.C.5.b.

SC-4.05.C – Supplement paragraph 4.05.C of the General Conditions by adding the following paragraphs:

5. *Weather-Related Delays*
  - a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been

reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.

- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
  - 1) Every workday on which one or more of the following conditions exist will be considered a “bad weather day”:
    - i) Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds **0.25 inches** of precipitation (as rain equivalent, based on the snow/rain conversion indicated in the table entitled Foreseeable Bad Weather Days; such table is hereby incorporated in this SC-4.05.C by reference.
    - ii) Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: **32** degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: **90** degrees Fahrenheit.
  - 2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by National Weather Service’s weather monitoring station at **Beach, ND**.
  - 3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the table in Exhibit **B—Foreseeable Bad Weather Days**.
  - 4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the table in Exhibit **B—Foreseeable Bad Weather Days** will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.

## **ARTICLE 5—SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS**

### *5.03 Subsurface and Physical Conditions*

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.D:

- E. The following table lists the reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data, and specifically identifies the Technical Data in the report upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A	June 24, 2013	Report of Geotechnical Exploration
N/A		

- F. The following table lists the drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data, and specifically identifies the Technical Data upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A		[Identify Technical Data]

- G. Contractor may examine copies of reports and drawings identified in SC-5.03.E and SC-5.03.F that were not included with the Bidding Documents at **1815 Schafer Street, Suite 301, Bismarck, ND 58503** during regular business hours, or may request copies from Engineer.

#### 5.06 Hazardous Environmental Conditions

SC-5.06 Add the following new paragraphs immediately after Paragraph 5.06.A.3:

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely:

Report Title	Date of Report	Technical Data
N/A		[Identify Technical Data]

5. The following table lists the drawings known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and Technical Data (if any) contained in such Drawings upon which Contractor may rely:

Drawings Title	Date of Drawings	Technical Data
N/A		[Identify Technical Data]

## ARTICLE 6—BONDS AND INSURANCE

### 6.01 Performance, Payment, and Other Bonds

SC-6.01 Add the following paragraphs immediately after Paragraph 6.01.A:

- Required Performance Bond Form:* The performance bond that Contractor furnishes will be in the form of EJCDC® C-610, Performance Bond (2010, 2013, or 2018 edition).
- Required Payment Bond Form:* The payment bond that Contractor furnishes will be in the form of EJCDC® C-615, Payment Bond (2010, 2013, or 2018 edition).

### 6.02 Insurance—General Provisions

SC-6.02 Add the following paragraph immediately after Paragraph 6.02.B:

1. Contractor may obtain worker’s compensation insurance from an insurance company that has not been rated by A.M. Best, provided that such company (a) is domiciled in the state in which the Project is located, (b) is certified or authorized as a worker’s compensation insurance provider by the appropriate state agency, and (c) has been accepted to provide worker’s compensation insurance for similar projects by the state within the last 12 months.

6.03 *Contractor’s Insurance*

SC-6.03 Supplement Paragraph 6.03 with the following provisions after Paragraph 6.03.C:

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: **N/A**
- E. *Workers’ Compensation and Employer’s Liability:* Contractor shall purchase and maintain workers’ compensation and employer’s liability insurance, including, as applicable, United States Longshoreman and Harbor Workers’ Compensation Act, Jones Act, stop-gap employer’s liability coverage for monopolistic states, and foreign voluntary workers’ compensation (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

<b>Workers’ Compensation and Related Policies</b>	<b>Policy limits of not less than:</b>
<b>Workers’ Compensation</b>	
State	Statutory
Applicable Federal (e.g., Longshoreman’s)	Statutory
Foreign voluntary workers’ compensation (employer’s responsibility coverage), if applicable	Statutory
<b>Employer’s Liability</b>	
Each accident	\$1,000,000
Each employee	\$1,000,000
Policy limit	\$2,000,000

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
  1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor’s employees,
  2. damages insured by reasonably available personal injury liability coverage, and
  3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor’s commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial

general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage.
    - a. Such insurance must be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, including but not limited to coverage of Contractor’s contractual indemnity obligations in Paragraph 7.18.
  3. Severability of interests and no insured-versus-insured or cross-liability exclusions.
  4. Underground, explosion, and collapse coverage.
  5. Personal injury coverage.
  6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
  7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 “Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured” or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of “insured contract” (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
  2. Any exclusion for water intrusion or water damage.
  3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
  4. Any exclusion of coverage relating to earth subsidence or movement.
  5. Any exclusion for the insured’s vicarious liability, strict liability, or statutory liability (other than worker’s compensation).
  6. Any limitation or exclusion based on the nature of Contractor’s work.
  7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
General Aggregate	\$2,000,000

<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
Products—Completed Operations Aggregate	\$1,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

- J. *Automobile Liability*: Contractor shall purchase and maintain automobile liability insurance for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy must be written on an occurrence basis.

<b>Automobile Liability</b>	<b>Policy limits of not less than:</b>
<b>Combined Single Limit</b>	
Combined Single Limit (Bodily Injury and Property Damage)	\$2,000,000

- K. *Umbrella or Excess Liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer’s liability, commercial general liability, and automobile liability insurance described in the Paragraphs above. The coverage afforded must be at least as broad as that of each and every one of the underlying policies.

<b>Excess or Umbrella Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence	\$2,000,000
General Aggregate	\$2,000,000

- L. *Contractor’s Pollution Liability Insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage, including cleanup costs, as a result of pollution conditions arising from Contractor’s operations and completed operations. This insurance must be maintained for no less than three years after final completion.

<b>Contractor’s Pollution Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence/Claim	\$100,000
General Aggregate	\$500,000

- M. *Contractor’s Professional Liability Insurance*: If Contractor will provide or furnish professional services under this *Contract*, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance must cover negligent acts, errors, or omissions in the performance of professional design or related services by the insured or others for whom the insured is legally liable. The insurance must be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. The retroactive date on the policy must pre-date the commencement of furnishing services on the Project.

<b>Contractor's Professional Liability</b>	<b>Policy limits of not less than:</b>
Each Claim	\$2,000,000
Annual Aggregate	\$2,000,000

- N. *Railroad Protective Liability Insurance:* Prior to commencing any Work within 50 feet of railroad-owned and controlled property, Contractor shall (1) endorse its commercial general liability policy with ISO CG 24 17, removing the contractual liability exclusion for work within 50 feet of a railroad, (2) purchase and maintain railroad protective liability insurance meeting the following requirements, (3) furnish a copy of the endorsement to Owner, and (4) submit a copy of the railroad protective policy and other railroad-required documentation to the railroad, and notify Owner of such submittal.

**[Insert additional specific requirements, commonly set by the railroad, here.]**

<b>Railroad Protective Liability Insurance</b>	<b>Policy limits of not less than:</b>
Each Claim	\$N/A
Aggregate	\$N/A

- O. *Unmanned Aerial Vehicle Liability Insurance:* If Contractor uses unmanned aerial vehicles (UAV—commonly referred to as drones) at the Site or in support of any aspect of the Work, Contractor shall obtain UAV liability insurance in the amounts stated; name Owner, Engineer, and all individuals and entities identified in the Supplementary Conditions as additional insureds; and provide a certificate to Owner confirming Contractor's compliance with this requirement. Such insurance will provide coverage for property damage, bodily injury or death, and invasion of privacy.

<b>Unmanned Aerial Vehicle Liability Insurance</b>	<b>Policy limits of not less than:</b>
Each Claim	\$N/A
General Aggregate	\$N/A

SC-6.04 Supplement Paragraph 6.04 of the General Conditions with the following provision:

- G. *Coverage for Completion Delays:* The builder's risk policy will include, for the benefit of Owner, loss of revenue and soft cost coverage for losses arising from delays in completion that result from covered physical losses or damage. Such coverage will include, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum

## **ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

### *7.03 Labor; Working Hours*

SC-7.03 Add the following new subparagraphs immediately after Paragraph 7.03.C:

1. Regular working hours will be **7am – 7pm**.
2. Owner's legal holidays are all federal holidays.

3. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent given after Contractor was provided written notice to Engineer a minimum of 5 days in advance.

SC-7.03 Add the following new paragraph immediately after Paragraph 7.03.C:

- D. **Contractor** shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-7.03 Add the following new subparagraph immediately after Paragraph SC-7.03.D:

1. For purposes of administering the foregoing requirement, additional overtime costs are defined as the Engineer's Standard Hourly Rates for work outside of the normal hours or on Saturdays, Sundays, or a Legal Holiday. Overtime charges may also include Per Diem and hotel Charges.

## ARTICLE 8—OTHER WORK AT THE SITE

8.02 *Coordination – N/A*

## ARTICLE 9—OWNER'S RESPONSIBILITIES

9.13 *Owner's Site Representative – N/A*

## ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.03 *Resident Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.B:

- C. The Resident Project Representative (RPR) will be Engineer's representative at the Site. RPR's dealings in matters pertaining to the Work in general will be with Engineer and Contractor. RPR's dealings with Subcontractors will only be through or with the full knowledge or approval of Contractor. The RPR will:
  1. In the absence of Owner on-site, act as owner to stop work. RPR at their discretion shall be authorized to stop work and expeditiously consult with Owner as to their recommendations regarding Owner's authority to stop work per 14.06
  1. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings (but not including Contractor's safety meetings), and as appropriate prepare and circulate copies of minutes thereof.
  2. *Safety Compliance:* Comply with Site safety programs, as they apply to RPR, and if required to do so by such safety programs, receive safety training specifically related to RPR's own personal safety while at the Site.



3. *Liaison*
    - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
    - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
    - c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.
  4. *Review of Work; Defective Work*
    - a. Conduct on-Site observations of the Work to assist Engineer in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.
    - b. Observe whether any Work in place appears to be defective.
    - c. Observe whether any Work in place should be uncovered for observation, or requires special testing, inspection or approval.
  5. *Inspections and Tests*
    - a. Observe Contractor-arranged inspections required by Laws and Regulations, including but not limited to those performed by public or other agencies having jurisdiction over the Work.
    - b. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Work.
  6. *Payment Requests: Review Applications for Payment with Contractor.*
  7. *Completion*
    - a. Participate in Engineer's visits regarding Substantial Completion.
    - b. Assist in the preparation of a punch list of items to be completed or corrected.
    - c. Participate in Engineer's visit to the Site in the company of Owner and Contractor regarding completion of the Work, and prepare a final punch list of items to be completed or corrected by Contractor.
    - d. Observe whether items on the final punch list have been completed or corrected.
- D. The RPR will not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
  2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
  3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
  4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction.

- 5 Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Authorize Owner to occupy the Project in whole or in part.

#### **ARTICLE 11—CHANGES TO THE CONTRACT**

No suggested Supplementary Conditions in this Article.

#### **ARTICLE 12—CLAIMS**

No suggested Supplementary Conditions in this Article.

#### **ARTICLE 13—COST OF WORK; ALLOWANCES, UNIT PRICE WORK**

##### *13.01 Cost of the Work*

SC-13.01 Supplement Paragraph 13.01.B.5.c.(2) by adding the following sentence:

The equipment rental rate book that governs the included costs for the rental of machinery and equipment owned by Contractor (or a related entity) under the Cost of the Work provisions of this Contract is the most current edition of AED Green Book: Rental Rates & Specifications for Construction Equipment.

SC-13.01 Supplement Paragraph 13.01.C.2 by adding the following definition of small tools and hand tools:

- a. For purposes of this paragraph, “small tools and hand tools” means any tool or equipment whose current price if it were purchased new at retail would be less than \$500.

##### *13.03 Unit Price Work*

SC-13.03 Delete Paragraph 13.03.E in its entirety and insert the following in its place:

###### *E. Adjustments in Unit Price*

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
  - a. the extended price of a particular item of Unit Price Work amounts to **5** percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than **25** percent from the estimated quantity of such item indicated in the Agreement; and
  - b. Contractor’s unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor's costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.
3. Adjusted unit prices will apply to all units of that item.

## **ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

### *14.02 Tests, Inspections, and Approvals*

SC-14.02 Delete Paragraph 14.02.B in its entirety and insert the following in its place:

- A. Contractor shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents, unless specifically identified as a service to be retained and paid for by the Owner.

## **ARTICLE 15—PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD**

### *15.01 Progress Payments*

SC-15.01 Add the following new Paragraph 15.01.F:

- F. For contracts in which the Contract Price is based on the Cost of Work, if Owner determines that progress payments made to date substantially exceed the actual progress of the Work (as measured by reference to the Schedule of Values), or present a potential conflict with the Guaranteed Maximum Price, then Owner may require that Contractor prepare and submit a plan for the remaining anticipated Applications for Payment that will bring payments and progress into closer alignment and take into account the Guaranteed Maximum Price (if any), through reductions in billings, increases in retainage, or other equitable measures. Owner will review the plan, discuss any necessary modifications, and implement the plan as modified for all remaining Applications for Payment.

### *15.03 Substantial Completion*

SC-15.03 Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, will be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under this Article 15.

## **ARTICLE 16—SUSPENSION OF WORK AND TERMINATION**

No suggested Supplementary Conditions in this Article.

## **ARTICLE 17—FINAL RESOLUTIONS OF DISPUTES**

### **17.01 Methods and Procedures**

SC-17.01 Delete Paragraphs 17.01.A and B in their entirety and replace with the following.

- A. A. For any conflicts that arise during the design, construction, or following completion of the Project, the Contractor and Engineer agree that all disputes between them arising out of or relating to this agreement shall be resolved, if possible, at the staff level of those involved in the Project. If any conflict or dispute cannot be resolved between the Contractor and Engineer staff involved in the Project, the presidents and project managers of the respective entities will meet to attempt to resolve any dispute. If resolution is not achieved, the dispute shall be submitted to non-binding mediation.
- B. B. The rights and remedies available to the Contractor shall be limited to breach of Contract, and no other cause or action, including, without limitation, negligence, misrepresentation, or other theory. The Owner or Contractor may assert any such breach of Contract claim in the Northwest District Court of North Dakota. Neither the Owner nor the Contractor shall be entitled to a jury trial for any such action. The right and remedies to the Owner hereunder shall be in addition to and shall not be construed in any way as a limitation of any rights and remedies available to the Owner which are otherwise available by law or contract, by special warranty or guarantee, or by other provisions of the Contract Documents. The provision of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which it may apply. All representations, warranties and guarantees made in the Contract Documents shall survive final payment, termination, or completion of this agreement.
- C. C. No waiver or failure to enforce any part or provision of the Contract Documents, including, but not limited to the change order process, shall be considered a waiver by the Owner of any subsequent default or breach of the same or any other part of provision contained herein, or right to enforce the same or any part of provision contained herein.

## **ARTICLE 18—MISCELLANEOUS**

18.08 *Assignment of Contract – N/A*

**EXHIBIT A—SOFTWARE REQUIREMENTS FOR ELECTRONIC DOCUMENT EXCHANGE**

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

**EXHIBIT B - FORESEEABLE BAD WEATHER DAYS**

Month	Number of Foreseeable Bad Weather Days in Month Based on Precipitation as Rain Equivalent (inches) (1)	Ambient Outdoor Air Temperature (degrees F)	
		Number of Foreseeable Bad Weather Days in Month Based on Low Temperature (at 11:00 a.m.)	Number of Foreseeable Bad Weather Days in Month Based on High Temperature (at 3:00 p.m.)
January	N/A	N/A	N/A
February	N/A	N/A	N/A
March	N/A	N/A	N/A
April	1	14	0
May	2	4	1
June	4	0	4
July	3	0	9
August	2	0	6
September	2	1	2
October	1	14	1
November	N/A	N/A	N/A
December	N/A	N/A	N/A

Notes:

1. Two inches of sleet equal one inch of rain. Five inches of wet, heavy snow equal one inch of rain. Fifteen inches of “dry” powder snow equals one inch of rain.

CONTRACTOR'S NAME, ADDRESS & TELEPHONE NUMBER

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

Return to:  
U.S. Department of Labor for OFCCP  
Southwest and Rocky Mountain  
Region Federal Building, Room 840  
525 South Griffin St.  
Dallas, TX 75202

EMPLOYER ID NUMBER OF CONTRACTOR: \_\_\_\_\_

**CONTRACT INFORMATION**

PROJECT AND LOCATION:				
Dollar Amount of Contract	Estimated Start Date	Estimated Completion Date	Contract No.	Geographical Area

**NOTIFICATION OF SUBCONTRACTS AWARDED  
(>\$10,000)**

Subcontractor's Name, Address, & Phone Number	Employer ID Number of Subcontractor	Estimated \$ Amount of Subcontract	Estimated Start Date	Estimated Completion Date

## **DISCOVERY OF ARCHAEOLOGICAL AND OTHER HISTORICAL ITEMS**

In the event of an archaeological find during any phase of construction, the following procedure will be followed:

- (1) Construction shall be halted, with as little disruption to the archaeological site as possible.
- (2) The Contractor shall notify the Owner who shall contact the State Historical Preservation Officer.
- (3) The State Historical Preservation Officer may decide to have an archaeologist inspect the site and make recommendations about the steps needed to protect the site, before construction is resumed.
- (4) The entire event should be handled as expediently as possible in order to hold the loss in construction time to a minimum while still protecting archaeological finds.

A similar procedure should be followed with regard to more recent historical resources. Should any artifacts, housing sites, etc., be uncovered, the same procedure should be followed as for an archaeological find.

In the event archaeological/historical data are evaluated to meet National Register criteria, the Advisory Council on Historic Preservation may be notified and asked to comment.

## **BONDING REQUIREMENTS**

Bonding requirements must meet the minimums established in 2 CFR 200:

- (1) A bid guarantee from each bidder equivalent to five percent of the bid price. The “bid guarantee” must consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of the bid, execute such contractual documents as may be required within the time specified.
- (2) A performance bond on the part of the contractor for 100 percent of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor’s requirements under such contract.
- (3) A payment bond on the part of the contractor for 100 percent of the contract price. A “payment bond” is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and materials in the execution of the work provided for in the contract.



# **WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

## **A. AUTHORITY**

(1) The contractor is subject to the provisions of the Williams-Steiger Occupational Safety and Health Act of 1970.

(2) These construction documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal law(s) , including but not limited to the latest amendment of the following:

a. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 94-596;

b. Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations;

c. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

## **B. SAFETY AND HEALTH PROGRAM REQUIREMENTS**

(1) This project, its prime contractor and its subcontractors, shall at all times be governed by Chapter XVII of Title 29, Code of Federal Regulations, Part 1926 - Safety and Health Regulations for Construction (29 CFR 22801), as amended to date.

(2) To implement the program and to provide safe and healthful working conditions for all persons, general project safety meetings will be conducted at the site at least once each month during the course of construction, by the construction superintendent or his/her designated safety officer. Notice of such meeting shall be issued not less than three (3) days prior, stating the exact time, location, and agenda to be included. Attendance by the owner, architect, general foreman, shop steward(s), and trades, or their designated representatives, witnessed in writing as such, shall be mandatory.

(3) To further implement the program, each trade shall conduct a short gang meeting, not less than once a week, to review project safety requirements mandatory for all persons during the coming week. The gang foreman shall report the agenda and specific items covered to the project superintendent, who shall incorporate these items in his/her daily log or report.

(4) The prime contractor and all subcontractors shall immediately report all accidents, injuries, or health hazards to the owner and architect, or their designated representatives, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970.

(5) This program shall become a part of the contract documents and the contract between the owner and prime contractor, prime contractor and all subcontractors, as though fully written therein.

## **WAGE RATE REQUIREMENTS**

Wage Rate Requirements under Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) Loans for Subrecipients that are Governmental Entities.

### **Preamble**

All laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code.

Pursuant to Reorganization Plan No. 14 and the Copeland Act, 40 U.S.C. 3145, the Department of Labor has issued regulations at 29 CFR Parts 1, 3, and 5 to implement the Davis-Bacon and related Acts. Regulations in 29 CFR 5.5 instruct agencies concerning application of the standard Davis-Bacon contract clauses set forth in that section. Federal agencies providing grants, cooperative agreements, and loans shall ensure that the standard Davis-Bacon contract clauses found in 29 CFR 5.5(a) are incorporated in any resultant covered contracts that are in excess of \$2,000 for construction, alteration or repair (including painting and decorating).

For additional guidance on the wage rate requirements, contact your awarding agency. Recipients of grants, cooperative agreements and loans should direct their initial inquiries concerning the application of Davis-Bacon requirements to a particular federally assisted project to the Federal agency funding the project. The Secretary of Labor retains final coverage authority under Reorganization Plan Number 14.

### **Wage Rate Requirements under CWSRF and DWSRF Loans.**

#### 1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a state water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

#### 2. Obtaining Wage Determinations.

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor <https://sam.gov/> weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor <https://sam.gov/> on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from <https://sam.gov/> into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract

or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

### 3. Contract and Subcontract Provisions

(a) The Recipient and/or subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a public building or public work, or building or work financed in whole or part from Federal funds in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1, the following clauses:

#### (1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act 1937 or under Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate of any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis –Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in §5.5(a)(4). Laborers or

mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rate conformed under paragraph (a)(1)(ii) of this section) and the subcontractors at the site of work in a prominent and accessible place where it can be easily seen by the workers.

Recipients may obtain wage determinations from the U.S. Department of Labor's web site: <https://sam.gov/>.

(ii)(A) The recipient, on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under contract shall be classified in conformance with the wage determination. The EPA award official shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the recipient agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the recipient to the EPA award official. The award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the award official or will notify the award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the recipient do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the questions, including the views of all interested parties and the recommendation of the award official, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The (recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of

1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the EPA if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the recipient who will maintain the records on behalf of EPA. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an

individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at:

<http://www.dol.gov/whd/programs/dbra/wh347.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the EPA if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit them to the recipient for transmission to the EPA, if requested by EPA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the recipient.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.



(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees—

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the

applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as

amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the (write in the name of the Federal agency) may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis- Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

#### 4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section. Withholding for unpaid wages and liquidated damages. The subrecipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(3) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

## 5. Compliance Verification

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a) (6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, the subrecipient should conduct interviews with a representative group of covered employees within two weeks of each contractor or subcontractor's submission of its initial weekly payroll data and two weeks prior to the estimated completion date for the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB . Subrecipients shall

immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour District Office listed at <http://www.dol.gov/whd/america2.htm>.

(INSERT APPLICABLE WAGE DECISION HERE)

Superseded General Decision Number: ND20230045

State: North Dakota

Construction Type: Heavy  
HEAVY CONSTRUCTION PROJECTS

Counties: Adams, Billings, Bowman, Divide, Golden Valley, Hettinger and Slope Counties in North Dakota.

HEAVY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.



1 06/21/2024  
 2 07/26/2024  
 3 08/30/2024

CARP1091-005 05/01/2024

	Rates	Fringes
CARPENTER.....	\$ 35.87	25.10

\* ELEC0714-017 07/01/2024

	Rates	Fringes
ELECTRICIAN.....	\$ 38.94	13.21+11.5%

ENGI0049-085 10/01/2023

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
Backhoe/Excavator/Trackhoe..	\$ 32.25	20.65
Forklift.....	\$ 32.25	20.65
Loader.....	\$ 32.25	20.65

IRON0512-044 04/30/2023

	Rates	Fringes
IRONWORKER, REINFORCING.....	\$ 37.95	21.75

LAB00563-007 05/01/2024

	Rates	Fringes
LABORERS (Common or General Excluding Pipeline Work).....	\$ 28.83	21.15

LAB00563-008 05/01/2023

	Rates	Fringes
LABORERS (Pipeline: Laborer-Common).....	\$ 30.80	20.45

\* UAVG-ND-0002 01/01/2023

	Rates	Fringes
OPERATOR: Roller.....	\$ 30.20	18.95

SUND2017-008 07/31/2020

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 23.69	0.00
LABORER: Pipelayer.....	\$ 26.63	9.96
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 30.51	15.60
OPERATOR: Bulldozer.....	\$ 28.80	14.93
OPERATOR: Crane.....	\$ 29.23	16.49

OPERATOR: Grader/Blade.....\$ 22.19 11.00

TRUCK DRIVER: Dump Truck.....\$ 31.95 18.80

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate

changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

#### State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R. 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter

\* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

## **AMERICAN IRON AND STEEL (AIS) REQUIREMENTS**

The Contractor acknowledges that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel,” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

One of the following certification forms should be used as documentation of compliance with the AIS requirements.

## Sample Certification for AIS

The following information is provided as a sample letter of certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxx
2. Xxx
3. Xxx

Such process took place at the following location:

\_\_\_\_\_

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

## Sample Step Certification for AIS

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxx
2. Xxx
3. Xxx

Such process took place at the following location:

\_\_\_\_\_

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

## **LEAD SERVICE LINE REPLACEMENT (DWSRF)**

The memo *Implementing Lead Service Line Replacement Projects Funded by the Drinking Water State Revolving Fund* dated May 1, 2024 and issued by the Environmental Project Agency outlines the following requirements that apply to lead service line replacements (LSLR) depending on the project type:

### **Stand-alone LSLR**

Stand-alone LSLR projects refers to projects that are solely replacing lead service lines and are not conducting additional construction or activities that would disturb the service line, such as main replacement or meter replacement. All LSLRs conducted through a stand-alone LSLR project must replace the full lead service line (i.e., the customer-owned and system-owned portions) unless a portion has already been replaced or is concurrently being replaced with another funding source. The entire length of each property's lead service line must be replaced at the same time except where it is impractical due to access constraints or local requirements that prevent the same organization from completing the full LSLR at the same time. The time between starting and completing full LSLR should be as short as possible and should not exceed three months.

### **LSLR in Conjunction with Planned Infrastructure Projects**

All DWSRF-funded projects involving LSLR implemented in conjunction with other planned infrastructure projects that affect the service line must plan to replace the full service line. Planned infrastructure work includes water infrastructure or capital improvement projects that do not solely replace lead service lines. Examples include, but are not limited to, water main replacement, meter replacement, and transportation-related construction projects. A partial LSLR may only be funded by the SRF where the water system shows all of the following: that the partial LSLR is done in conjunction with planned infrastructure work, that disturbance to the service line is unavoidable because of the planned infrastructure work, and that the water system has documented customer refusal showing it cannot gain access to that property to conduct a full LSLR following multiple attempts. Refusals may consist of any of the following: a refusal signed by the customer, documentation of a verbal statement refusing replacement, or documentation of no response after multiple attempts to reach the customer regarding full LSLR.

### **LSLR in Conjunction with Emergency Infrastructure Repair or Replacement**

Emergency repair and replacement of drinking water transmission and distribution infrastructure can necessitate unexpected replacement of lead service lines. Under such circumstances, DWSRF-funded borrowers must offer to replace the full lead service line. However, the borrower may use DWSRF funding to pay for emergency partial LSLR if full replacement is not possible due to a documented customer refusal. Refusals may consist of any of the following: a refusal signed by the customer, documentation of a verbal statement refusing replacement, or documentation of no response after multiple attempts to reach the customer regarding full LSLR.



## ND Minority Participation Goals

Covered Area*	Goal (percent)*
149 Fargo-Moorhead, ND-MN:	
Non-SMSA Counties -----	0.7
MN Becker; MN Clay; MN Wilkin; ND Barnes; ND Cass; ND Dickey; ND Eddy; ND Foster; ND Griggs; ND La Moure; ND Logan; ND McIntosh; ND Ransom; ND Richland; ND Sargent; ND Steele; ND Stutsman; ND Traill	
150 Grand Forks, ND:	
SMSA Counties:	
2985 Grand Forks, ND-MN -----	1.2
MN Polk; ND Grand Forks	
Non-SMSA Counties -----	2.0
MN Beltrami; MN Clearwater; MN Hubbard; MN Kittson; MN Lake of the Woods; MN Mahnommen; MN Marshall; MN Norman; MN Pennington; MN red Lake; MN Roseau; ND Benson; ND Cavalier; ND Nelson; ND Pembina; ND Ramsey; ND Towner; ND Walsh	
151 Bismarck, ND:	
SMSA Counties:	
1010 Bismarck, ND-----	0.4
ND Burleigh; ND Morton	
Non-SMSA Counties -----	1.3
ND Adams; ND Billings; ND Bowman; ND Dunn; ND Emmons; ND Golden Valley; ND Grant; ND Hettinger; ND Kidder; ND Mercer; ND Oliver; ND Sheridan; ND Sioux; ND Slope; ND Stark; ND Wells	
152 Minot, ND:	
Non-SMSA Counties -----	4.4
MT Daniels; MT Richland; MT Roosevelt; MT Sheridan; ND Bottineau; ND Burke; ND Divide; ND McHenry; ND McKenzie; ND McLean; ND Mountrail; ND Pierce; ND Renville; ND Rolette; ND Ward; ND Williams	

\*Insert the project location and the appropriate minority participation goal in the following Executive Order 11246 language. The female participation goal is 6.9% for the entire state.

# EQUAL EMPLOYMENT OPPORTUNITY and AFFIRMATIVE ACTION REQUIREMENTS on FEDERALLY ASSISTED CONSTRUCTION CONTRACTS

## Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation in each trade 1.3  
Goals for female participation in each trade - 6.9

These goals are applicable to all the contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number for the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is ND-Golden Valley.

**This notice shall be included in, and shall be a part of, all solicitations for offers and bids on all federal and federally assisted construction contracts or subcontracts.**

### EQUAL OPPORTUNITY CLAUSES

The Equal Opportunity Clause published at 41 CFR Part 60-1.4(b) is required to be included in, and is part of, all nonexempt federally assisted construction contracts and subcontracts. The Equal Opportunity Clause shall be considered to be a part of every contract and subcontract required by the regulations in this part to include such a clause whether or not it is physically incorporated in such contracts.

In addition to the clauses described above, all federal contracting officers, all applicants, and all non-construction contractors, as applicable, shall include the specifications set forth in this section in all federal and federally assisted construction contracts in excess of \$10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part and in construction subcontracts in excess of \$10,000 necessary in whole or in part to the performance of nonconstruction Federal contracts and subcontracts covered under the Executive Order.

## STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

a. "Covered Area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the employer's quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

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

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

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

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

2. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area, (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The contractor shall implement the specific affirmative action standards provided in paragraphs (7)(a) through (p) of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall

excuse the contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

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

7. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

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

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the areas which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under (7)(b) above.

f. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a contractor's workforce.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7)(a) through (p). The efforts of a contractor association, joint contractor- union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under (7)(a) through (p) of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the contractor has achieved its goals for women generally, the contractor may be in violation of the Executive order if a specific minority group of women is under-utilized).

10. The contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

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

13. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph (7) of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

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

# GUIDANCE FOR UTILIZATION OF SMALL, MINORITY AND WOMEN BUSINESS ENTERPRISES REQUIREMENTS

The North Dakota Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF), receive federal funds from the U.S. Environmental Protection Agency (EPA) to provide low interest rate loans to finance water infrastructure projects. As a condition of federal grant awards, EPA regulations require that loan recipients and sub-recipients (i.e., prime contractors and subcontractors) make a good-faith effort to award a fair share of work to DBE's who are minority business enterprises (MBE's) and women's business enterprises (WBE's). DBE requirements can be found in 40 CFR Part 33.

To ensure compliance with EPA's DBE requirements, both **Project Owners (Loan Recipients)** and **Prime Contractors must** undertake the good faith efforts to provide opportunities for DBE companies to participate in procurements. EPA regulations require evidence of the demonstration of the six good faith efforts in trying to achieve the DBE participation goals. DWSRF and CWSRF negotiated DBE participation goals with EPA of **2%** for MBEs and **3%** for WBEs. The DBE goals are not a quota.

## **Good Faith Efforts – 40 CFR 33.301**

The following good faith efforts which apply to the procurement categories involving EPA financial assistance funds can be found in **40 CFR, Subpart C, Part 33** of EPA's Disadvantaged Business Enterprise Program Rule.

1. Ensure DBE's are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities.
2. Search DBE lists for potential subcontracts/suppliers.
  - a. The DBE lists are updated frequently, so search on-line for the most current list.
  - b. Contact at least one DBE for each subcontract/supplier needed.
3. Provide notice to DBE organizations of opportunities to bid.
4. Arrange time frames for contracts and establish delivery schedules in a way that encourages and facilitates participation by DBEs in the competitive process.
5. Divide total requirements into smaller tasks or quantities and using DBE prime contractors and subcontractors when feasible to permit maximum DBE participation.
6. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
7. Use the services and assistance of the Small Business Administration (SBA), Department of Transportation (DOT) and Minority Business Development Agency of the U. S. Department of Commerce.
8. If the Prime Contractor awards subcontracts, require the prime contractor to take these same Good Faith Efforts.

## **TO PROVIDE PROCUREMENT OPPORTUNITIES TO DBE FIRMS, THE PROJECT OWNER SHOULD:**

- Conduct pre-bid meetings to inform potential bidders/contractors about DBE requirements and provide guidance in undertaking the required good faith efforts found at 40 CFR 33.301.
- When appropriate invite DBE companies to meetings, conferences, etc., to inform them of procurement opportunities.
- Use listings of certified DBEs from the U.S. Small Business Administration (SBA), North Dakota Department of Transportation (NDDOT), and EPA's Office of Small Business Programs (OSBP) etc, to solicit DBE companies as prime contractors whenever they are potential. The SBA maintains a list that can be found at the following link [http://dsbs.sba.gov/search/dsp\\_dsbs.cfm](http://dsbs.sba.gov/search/dsp_dsbs.cfm). The NDDOT maintains a list which can be found at the following link <http://dotnd.diversitycompliance.com>. EPA's OSBP maintains a list located on EPA's OSBP Home Page (<http://www.epa.gov/smallbusiness/>).



## **Procurement, Recordkeeping and Reporting**

### **1. PROJECT OWNERS ARE REQUIRED TO:**

- A. Ensure all prime contractors apply the Good Faith Efforts and submit required forms as listed below.
- B. Project Owners must require its prime contractor to pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the project owner/recipient.  
40 CFR 33.302(a)
- C. Maintain copies of all DBE documentation and forms.

### **2. PRIME CONTRACTORS ARE REQUIRED TO:**

- A. Notify the loan recipient in writing prior to any termination of a DBE subcontractor by the prime contractor. 40 CFR 33.302(b)
- B. Follow the six good faith efforts if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. 40 CFR 33.302(c)
- C. Follow the six good faith efforts for all subcontract and/or supplier procurements even if the prime contractor has achieved its fair share objectives. 40 CFR 33.302(d)

### **3. All SRF loan recipients are required to create and maintain a bidders list in accordance with 40 CFR, Subpart E, Part 33** of EPA's Disadvantaged Business Enterprise Program rule, (40 CFR 33.501(b)). The bidder's list must include all companies that bid/quote on prime contracts and/or bid/quote on subcontracts and supplies for SRF funded projects (including DBEs and non-DBEs). The bidder's list must include the following prime and subcontractor information (40 CFR 33.501): entity's name and the name of the person contacted; entity's mailing address, telephone number, and e-mail address; the task or material on which the entity bid/quoted, the amount and date of bid/quote; and the entity's status as an MBE/WBE or non-MBE/WBE.

### **4. The recipient/contractor shall supply the Department of Environmental Quality with information** concerning the award of contracts to MBE/WBE's upon request. This may include copies of subcontracts, purchase orders, and receipts which verify contract amounts and utilization.

### **5. Bidders/offerors shall demonstrate compliance with good faith efforts in order to be deemed responsible.** Demonstration of compliance includes completion of the following MBE/WBE Subcontractor Solicitation Information form and inclusion in the bid envelope. The bidder must solicit quotes from at least three certified MBEs and three certified WBEs and include the required information on the form. The bidder must also include similar information on the form for non MBE/WBE subcontractors from which quotes were received for the same work offered to MBE/WBEs.

## MBE/WBE SUBCONTRACTOR SOLICITATION INFORMATION

Name, Address, & Phone Number of Subcontractor Contacted	Date that Quote was Requested	Description of Work Offered	Date of Follow-up & Person Contacted	Amount of Quote or Reason Not Quoting	Quote Accepted? If not, List Reason for Rejection	Indicate if MBE/WBE or non MBE/WBE

\* Use additional sheets if necessary.

The undersigned hereby certifies that the above information is true and correct.

**The contractor shall supply copies of subcontracts, purchase orders, and receipts which verify contract amounts and utilization of MBE/WBE subcontractors following contract award.**

By:

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

# CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

## A. INSTRUCTIONS

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, or a subagreement thereunder for \$25,000 or more. The status of prospective individuals or organizations can be checked at:

<http://www.sam.gov>

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

## B. WHERE TO SUBMIT

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

## C. HOW TO OBTAIN FORMS

Additional forms may be obtained from the State and may be reproduced.

United States Environmental Protection Agency  
Washington, DC 20460

**Certification Regarding Debarment, Suspension, and Other Responsibility Matters**

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

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

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

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

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

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

\_\_\_\_\_  
Typed Name & Title of Authorized Representative

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Date

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

# PROHIBITION AGAINST LISTED VIOLATED FACILITIES

## A. REQUIREMENTS

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 92-604) and section 308 of the Clean Water Act (33 U.S.C. 1251, as amended), respectively, which relate to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency list of violating facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from the listing.

(3) To use his best efforts to comply with clean air and clean water standards at the facilities in which the contract is being performed.

(4) To insert the substance of the provisions of this clause, including this paragraph (4), in any nonexempt subcontract.

## B. DEFINITIONS

(1) Air Act means the Clean Air Act, as amended (42 U.S.C. 1857 et seq.).

(2) Water Act means the Clean Water Act, as amended (33 U.S.C. 1251 et seq.).

(3) Clean Air Standards means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted under the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 (d) of the Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111 (c) or section 111(d), or an approved implementation procedure under section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).

(4) Clean Water Standards means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated under the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by a local government to ensure compliance with pretreatment regulations as required by section 307 of Water Act (33 U.S.C. 1317).

(5) Compliance means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency in accordance with the requirements of the Air Act or Water Act and regulations.

(6) Facility means any building, plant, installation, structure, mine, vessel, or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor, to be used in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are located in one geographical area.

## **PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT**

This term and condition implements 2 CFR 200.216 and is effective for obligations and expenditures of EPA financial assistance funding on or after 8/13/2020.

As required by 2 CFR 200.216, EPA recipients and subrecipients, including borrowers under EPA funded revolving loan fund programs, are prohibited from obligating or expending loan or grant funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). Recipients, subrecipients, and borrowers also may not use EPA funds to purchase:

- a. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- b. Telecommunications or video surveillance services provided by such entities or using such equipment.
- c. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

Consistent with 2 CFR 200.471, costs incurred for telecommunications and video surveillance services or equipment such as phones, internet, video surveillance, and cloud servers are allowable except for the following circumstances:

- a. Obligating or expending EPA funds for covered telecommunications and video surveillance services or equipment or services as described in 2 CFR 200.216 to:
  - (1) Procure or obtain, extend or renew a contract to procure or obtain;
  - (2) Enter into a contract (or extend or renew a contract) to procure; or
  - (3) Obtain the equipment, services, or systems.

Certain prohibited equipment, systems, or services, including equipment, systems, or services produced or provided by entities identified in section 889, are recorded in the System for Award Management exclusion list.

## **BUILD AMERICA, BUY AMERICA (BABA) REQUIREMENTS**

The Contractor acknowledges that it understands the goods and services under this Agreement are being funded with federal monies and have statutory requirements commonly known as “Build America, Buy America;” that requires all of the iron and steel, manufactured products, and construction materials used in the project to be produced in the United States (“Build America, Buy America Requirements”) including iron and steel, manufactured products, and construction materials provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Owner and Funding Authority (a) the Contractor has reviewed and understands the Build America, Buy America Requirements, (b) all of the iron and steel, manufactured products, and construction materials used in the project will be and/or have been produced in the United States in a manner that complies with the Build America, Buy America Requirements, unless a waiver of the requirements is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the Build America, Buy America Requirements, as may be requested by the Owner or the Funding Authority. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner or Funding Authority to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Owner or Funding Authority resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the Funding Authority or any damages owed to the Funding Authority by the Owner). If the Contractor has no direct contractual privity with the Funding Authority, as a lender or awardee to the Owner for the funding of its project, the Owner and the Contractor agree that the Funding Authority is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the Funding Authority.

## Sample Certification for BABA

The following information is provided as a sample letter of certification for BABA compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: Build America, Buy America Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the Build America, Buy America requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxx
2. Xxx
3. Xxx

Such process took place at the following location:

\_\_\_\_\_

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative



## Sample Step Certification for BABA

The following information is provided as a sample letter of step certification for BABA compliance. Documentation must be provided on company letterhead.

Date

Company Name

Company Address

City, State Zip

Subject: Build America, Buy America Step Certification for Project (XXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the Build America, Buy America requirements as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. Xxx
2. Xxx
3. Xxx

Such process took place at the following location:

\_\_\_\_\_

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

## SIGNAGE REQUIREMENTS

This project is subject to Bipartisan Infrastructure Law (BIL) signage requirements. A physical sign displaying the official Investing in America emblem and EPA logo shall be placed at the construction site in an easily visible location. **Contact the SRF program engineer assigned to the project or [ndsrf@nd.gov](mailto:ndsrf@nd.gov) or 701-328-5211 to place a sign order and arrange pick-up in Bismarck, ND. Signs shall be returned to DEQ upon completion of the project.**

### Signage Requirements

- a. Investing in America Emblem: The recipient will ensure that a sign is placed at construction sites supported under this award displaying the official Investing in America emblem and must identify the project as a “project funded by President Biden’s Bipartisan Infrastructure Law.” Construction is defined at 40 CFR 33.103 as “erection, alteration, or repair (including dredging, excavating, and painting) of buildings, structures, or other improvements to real property, and activities in response to a release or a threat of a release of a hazardous substance into the environment, or activities to prevent the introduction of a hazardous substance into a water supply.” The sign must be placed at construction sites in an easily visible location that can be directly linked to the work taking place and must be maintained in good condition throughout the construction period. The recipient will ensure compliance with the guidelines and design specifications for using the official Investing in America emblem and corresponding logomark available at: <https://www.whitehouse.gov/wp-content/uploads/2023/02/Investing-in-America-Brand-Guide.pdf> and [https://www.epa.gov/sites/default/files/2015-01/documents/epa\\_logo\\_seal\\_specifications\\_for\\_infrastructure\\_grants.pdf](https://www.epa.gov/sites/default/files/2015-01/documents/epa_logo_seal_specifications_for_infrastructure_grants.pdf)
- b. EPA Logo: The recipient will ensure that signage displays the EPA logo along with the official Investing in America emblem. The EPA logo must not be displayed in a manner that implies that EPA itself is conducting the project. Instead, the EPA logo must be accompanied with a statement indicating that the recipient received financial assistance from EPA for the project. The recipient will ensure compliance with the sign specifications provided by the EPA Office of Public Affairs (OPA) available at: <https://www.epa.gov/grants/epa-logo-seal-specifications-signage-produced-epa-assistance-agreement-recipients>. As provided in the sign specifications from OPA, the EPA logo is the preferred identifier for assistance agreement projects and use of the EPA seal requires prior approval from the EPA. To obtain the appropriate EPA logo or seal graphic file, the recipient should send a request directly to OPA and include the EPA Project Officer in the communication. Instructions for contacting OPA is available on the Using the EPA Seal and Logo page.
- c. Procuring Signs: Consistent with section 6002 of RCRA, 42 U.S.C. 6962, and 2 CFR 200.323, recipients are encouraged to use recycled or recovered materials when procuring signs. Signage costs are considered an allowable cost under this assistance agreement provided that the costs associated with signage are reasonable. Additionally, to increase public awareness of projects serving communities where English is not the predominant language, recipients are encouraged to translate the language on signs (excluding the official Investing in America emblem or EPA logo or seal) into the appropriate non-English language(s). The costs of such translation are allowable, provided the costs are reasonable.

**WORK CHANGE DIRECTIVE NO.: [Number of Work Change Directive]**

Owner: \_\_\_\_\_ Owner's Project No.: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Engineer's Project No.: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: \_\_\_\_\_  
Contract Name: \_\_\_\_\_  
Date Issued: \_\_\_\_\_ Effective Date of Work Change Directive: \_\_\_\_\_

Contractor is directed to proceed promptly with the following change(s):

Description:

**[Description of the change to the Work]**

Attachments:

**[List documents related to the change to the Work]**

Purpose for the Work Change Directive:

**[Describe the purpose for the change to the Work]**

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

**Notes to User—Check one or both of the following**

Non-agreement on pricing of proposed change.  Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: \$ \_\_\_\_\_ **[increase] [decrease] [not yet estimated].**

Contract Time: \_\_\_\_\_ days **[increase] [decrease] [not yet estimated].**

Basis of estimated change in Contract Price:

Lump Sum  Unit Price  Cost of the Work  Other

Recommended by Engineer

Authorized by Owner

By: \_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

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

\_\_\_\_\_

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**CHANGE ORDER NO.: [Number of Change Order]**

Owner: \_\_\_\_\_ Owner's Project No.: \_\_\_\_\_  
 Engineer: \_\_\_\_\_ Engineer's Project No.: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Contract Name: \_\_\_\_\_  
 Date Issued: \_\_\_\_\_ Effective Date of Change Order: \_\_\_\_\_

The Contract is modified as follows upon execution of this Change Order:

Description:

**[Description of the change]**

Attachments:

**[List documents related to the change]**

<b>Change in Contract Price</b>	<b>Change in Contract Times [State Contract Times as either a specific date or a number of days]</b>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for final payment: _____
<b>[Increase] [Decrease]</b> from previously approved Change Orders No. 1 to No. <b>[Number of previous Change Order]</b> : \$ _____	<b>[Increase] [Decrease]</b> from previously approved Change Orders No.1 to No. <b>[Number of previous Change Order]</b> : Substantial Completion: _____ Ready for final payment: _____
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for final payment: _____
<b>[Increase] [Decrease]</b> this Change Order: \$ _____	<b>[Increase] [Decrease]</b> this Change Order: Substantial Completion: _____ Ready for final payment: _____
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for final payment: _____

Recommended by Engineer (if required)

Accepted by Contractor

By: \_\_\_\_\_

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

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

Authorized by Owner \_\_\_\_\_ Approved by Funding Agency (if applicable) \_\_\_\_\_

By: \_\_\_\_\_

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

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

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**FIELD ORDER NO.: [Number of Field Order]**

Owner: \_\_\_\_\_ Owner's Project No.: \_\_\_\_\_  
Engineer: \_\_\_\_\_ Engineer's Project No.: \_\_\_\_\_  
Contractor: \_\_\_\_\_ Contractor's Project No.: \_\_\_\_\_  
Project: \_\_\_\_\_  
Contract Name: \_\_\_\_\_  
Date Issued: \_\_\_\_\_ Effective Date of Field Order: \_\_\_\_\_

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

**Reference:**

Specification Section(s): \_\_\_\_\_

Drawing(s) / Details (s): \_\_\_\_\_

**Description:**

**[Description of the change to the Work]**

**Attachments:**

**[List documents supporting change]**

**Issued by Engineer**

By: \_\_\_\_\_

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

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

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SECTION 00 63 25

ATTACHMENT

SUBSTITUTION REQUEST FORM

Engineer's Project No:     P05066-2022-001     Date: \_\_\_\_\_

Project Name: **Beach 2025 Street and Utility Improvements**

Specification Section	Manufacturer Specified	Proposed Manufacturer

Indicate drawing sheet name in lieu of specification section where applicable.

**Vendor/Supplier**

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

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

**Contact:** \_\_\_\_\_ **E-Mail:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_

**Reason for Substitution:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Does Specification Allow for Substitutions of Proposed Items? Yes: \_\_\_ No: \_\_\_

Will the Substitution Provide Cost Savings to the Owner? Yes: \_\_\_ No: \_\_\_

Are Proposed Substitutions Equivalent/Superior to those Specified? Yes: \_\_\_ No: \_\_\_

Did you submit a complete qualification package as described in Part 1.02.B of Section 02600 with this form? Yes: \_\_\_ No: \_\_\_

I, \_\_\_\_\_, accept responsibility for coordination of proposed substitution and accept all additional costs resulting from the incorporation of proposed substitution into the Project. (Proposers Signature Required)

**For Engineer's Use:**.....**Comments:** \_\_\_\_\_

Accepted: \_\_\_ Not Accepted: \_\_\_ \_\_\_\_\_

No Action Required: \_\_\_ \_\_\_\_\_

Submission: Incomplete: \_\_\_ Too Late: \_\_\_ \_\_\_\_\_

Reviewed By: \_\_\_\_\_ \_\_\_\_\_

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# **DIVISION 01 GENERAL REQUIREMENTS**



**SECTION 01 10 00**  
**SUMMARY OF WORK**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. References.
  - 2. Project Description.
  - 3. Milestones.
  - 4. Contractor's Use of Site and Owner Occupancy.
  - 5. Work on Street Right-of-Way.
  - 6. Access to Streets and Highways.
  - 7. Access to Businesses and Property Owners.
  - 8. Coordination.
  - 9. Field Engineering.
  - 10. Reference Standards.
  - 11. Public Convenience.
  - 12. Utility Coordination.

1.02 REFERENCES

- A. Manual on Uniform Traffic Control Devices for Streets and Highways by the U.S. Department of Transportation Federal Highway Administration, latest edition.

1.03 PROJECT DESCRIPTION

- A. Major Components of the Project include:

Work generally consists of bonding, mobilization, erosion control, removing and replacing water main pipe and appurtenances, removing and replacing associated service connections, removing and replacing asphalt pavement, sidewalk, valley gutter, and concrete driveways within the City of Beach. Other components such as seeding, signing, site restorations, and incidental trench dewatering are also included.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of Site and premises to allow:
  - 1. Owner occupancy.
  - 2. Work by Others.

#### 1.05 OWNER OCCUPANCY REQUIREMENTS

- A. Cooperate with Owner to minimize conflict and to facilitate Owner's operations. **Schedule all Work to accommodate this requirement.** No interruption will be permitted which adversely affects the degree of service the Owner provides. Contractor shall provide temporary facilities and make temporary modifications as necessary to keep the existing facilities in operation during the construction period.
- B. **Work requiring planned facility shutdown**, once undertaken, **must** be substantially completed to permit restart of facility within scheduled time. Critical Work elements may require continuous, non-stop work during or throughout the night to complete within schedule.
- C. Pre-plan, schedule, coordinate, and stage for required materials, manpower, contractors, subcontractors, etc. to complete critical elements of Work.
- D. Existing materials and equipment removed and not reused as part of the Work, shall remain the OWNER's property, except any item the Owner does not wish to salvage. Refer to the Drawings for particular details on those items that the Owner requires for salvage. Any items the Owner does not elect to salvage shall become property of the Contractor. The Contractor shall properly dispose of these items at no cost to Owner.

#### 1.06 WORK SCHEDULE

- A. Coordinate construction schedule and operations with Owner and Engineer to accommodate Owner occupancy requirements.
- B. Construct Work in logical sequence and stages to accommodate the following priority of critical Work and Milestones:
  - 1. Substantial Completion as set forth in the Agreement.
  - 2. Final Completion as set forth in the Agreement.
  - 3. Milestone Dates and their associated penalties, as set forth in the Agreement, are Final.

#### 1.07 ACCESS TO STREETS AND HIGHWAYS

- A. The Contractor shall be responsible for all construction signage, flagging, and protection of the public. Signage shall conform to requirements as set forth in the Drawings and Manual on Uniform Traffic Control Devices. Signage for each area to be constructed shall be approved by the Engineer and Owner and in place prior to the start of construction in that area.

- B. Whenever construction is stopped due to inclement weather, weekends, holidays or other reasons, suitable signing, protection of public, and access shall be provided for all property owners at all times.

#### 1.08 ACCESS FOR PROPERTY OWNERS

- A. Contractor shall maintain driveway access or altered means of access to existing facilities affected by construction progress for the duration of the construction period. Cost of providing, maintaining, and removing access roadways shall be incidental to the project.
- B. Maintain access at all times when construction is stopped due to inclement weather, weekends, holidays, or other reasons.
- C. For public protection, provide fencing and barricades near excavations and construction activities in business, private property, and public property access areas.
- D. Provide fencing for the entire open trench length as well as the ends of the open trench.

#### 1.09 COORDINATION

- A. Coordinate work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed at a later date.
- B. Verify characteristics of elements of interrelated materials are compatible; coordinate work of various Sections having interdependent responsibilities for installing, connection to, and placing in service, such materials.

#### 1.10 PUBLIC CONVENIENCE

- A. The Contractor shall perform Work and operate vehicles and construction equipment (a) in the way that causes the least practicable interference with pedestrians and local traffic, (b) without becoming a hazard to the public, and (c) without interfering with overhead utilities. When transporting materials, vehicles shall not be loaded beyond the capacity set by their manufacturers or applicable Laws. When crossing sidewalks, curbs or landscaped areas, the Contractor shall protect them from damage.
- B. If any road is closed, the Contractor shall maintain traffic over, through or around the Work with the maximum practical convenience, for the full twenty four (24) hours of each day of the Contract, whether or not Work has ceased temporarily. The Contractor shall notify the Engineer before starting the Work of any construction operations that might in any way inconvenience or endanger traffic so that the necessary arrangements may be determined.
- C. The convenience of the local residents and walking path along the Work shall be provided for in a reasonable, adequate and satisfactory manner. Unless otherwise provided, where existing roads are not available for use as detours, all local and

foot traffic shall be permitted to pass through the Work as detailed on the plans.

- D. The Contractor shall provide and maintain in a manner approved and deemed practicable by the Engineer such temporary roads as may be necessary to provide convenient access to driveways, buildings, or other property abutting the Work.
- E. No material or other obstructions shall be placed within fifteen (15) feet of a fire hydrant, valve, manhole, etc., or any closer than it is permitted by local Laws. The Contractor shall not operate valves or otherwise interfere with the operation of the Owner's water system or the water system of any other public utility, without first securing the necessary approvals and permits in writing.
- F. Where construction or local traffic is being permitted to pass through the Work, the Contractor shall provide a smooth, even surface that will provide a satisfactory passageway for use of traffic. The Contractor shall maintain satisfactory dust control measures at all times.
- G. The Contractor shall give to the Engineer and affected owners, two (2) Business days advance notice of Work on or across private driveways. Interference from such Work shall be minimized by restoring service as soon as possible.

#### 1.11 UTILITY COORDINATION

- A. Contractor shall, as provided in the General Conditions, notify all local utilities and pipeline companies including, but not limited to, the following when prosecution of the Work may affect them.

<u>Type of Utility</u>	<u>Utility or Company</u>
(ALL)	North Dakota One Call (1-800-795-0555)

Unless otherwise specified, utilities shall be notified at least 48 hours prior to excavating and backfilling near underground utilities or pole lines. Excavating near utilities shall be done by hand until the utility is exposed. Contractor shall coordinate with the utility if they require their representative to be onsite during excavating and backfilling.

#### 1.12 CONNECTIONS TO EXISTING WATER MAINS

- A. Contractor shall make all connections to existing water mains as indicated on the Drawings. In each case, Contractor shall receive permission from Owner at least two weeks prior to undertaking connections. Contractor shall protect facilities against deleterious substances and damage.
- B. Connections to existing water mains shall be thoroughly planned in advance, and all required equipment, materials, and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock) if necessary or requested by Owner or Engineer to complete connections in the minimum time. Operation of valves or other appurtenances on existing water mains, when required shall be by or under the direct supervision of the Owner.



- C. In the event that a water service interruption affects a customer who for legitimate reasons cannot be without service for the time in question, the Contractor shall either reschedule the work to a time the customer can be without service or arrange to supply temporary service for said customer, all at no additional cost to the Owner.

#### 1.13 STARTUP

- A. Equipment startup will require the Contractor to clean, disinfect, fill, pressurize, test, etc. newly installed or modified equipment prior to placing online.
- B. Contractor shall be fully responsible for all preparation leading up to equipment startup including disposal of all cleaning solutions
- C. The Contractor must properly dispose of chlorinated water or other disinfecting solution.
  - 1. Chlorinated water must be dechlorinated.
  - 2. Dechlorinated water will not be disposed of on the ground.
- D. Refer to individual equipment specification regarding startup requirements.
- E. Contractor shall coordinate all startup activities to comply with all permits, licenses, contracts, and owner requirements.

#### 1.14 DESCRIPTION OF WORK FOR CONTRACT NO. 1 – GENERAL CONSTRUCTION

- A. Front Ends (Division 0)
  - 1. Bidding Documents – All Sections.
  - 2. Contract Documents – All Sections.
- B. Division 1 – General Requirements – All Sections.
- C. Drawings:
  - 1. All sheets

### **PART 2 PRODUCTS**

Not Used.

### **PART 3 EXECUTION**

Not Used.

### **END OF SECTION**

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**SECTION 01 14 00**  
**WORK RESTRICTIONS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. This Section includes:
  - 1. Contractor Use of Site and Premises.
  - 2. Owner Occupancy Requirements.
  - 3. Access to Streets and Highways.

1.02 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of Site and premises to allow:
  - 1. Owner Occupancy.
  - 2. Work by Others.
- B. Coordinate performance of all Work with Owner operations.
- C. Coordinate use of premises under direction of Engineer. Contractor shall confine construction equipment, storage of materials and equipment and operations of workmen to areas permitted by law, ordinances, permits, or requirements of Contract Documents, and shall not unreasonably encumber premises with construction equipment or other materials or equipment.
- D. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- E. Move any stored products, under Contractor's control, which interfere with operations of the Owner.
- F. Construction personnel may park only in areas designated by the Owner.
- G. Obtain and pay for use of storage or work areas needed for operations.
- H. Contractor shall provide the name, address, and telephone number of person who has access to equipment and is authorized to make emergency repairs to Contractor's work, such as to correct trench cave-ins, move excavated material, and correct other problems during weekends and off-work hours, so access can be maintained for firefighting equipment, and to maintain barricades for public safety.
- I. The Contractor must be satisfied through personal examination of the Site(s) as to all local conditions affecting their performance of the Contract. The Contractor is deemed to accept such conditions as found to exist.

- J. The Contractor shall preserve all monuments, benchmarks, reference points, and stakes. In case of destruction thereof, the Contractor will be charged with expense of replacement and shall be responsible for any mistake or loss of time that may be caused. Permanent monuments or benchmarks which must be removed or disturbed shall be protected until properly referenced for relocation. The Contractor shall furnish materials and assistance for the proper replacement of such monuments or benchmarks.
- K. Damaged Property:
1. Patch and or clean existing improvements and restore damage of property on, or adjacent to the Site(s) occasioned by the Work, including but not limited to, lawns, walks, driveways, roadways, curbs, pavements, structures, and utilities which are cut or damaged by operations and are not designated for removal, relocation, or replacement in the course of construction.
  2. If any direct or indirect damage is done to public or private property resulting from any act, omission, neglect, or misconduct, the Contractor shall restore the damaged property to a condition equal to that existing before the damage at no additional cost to the Owner. Repair, rebuild, or restore property as directed or make good such damage in an acceptable manner.
  3. Provide written acceptance of restoration by authority or Owner.
- L. Existing Facilities:
1. The Contractor shall take all necessary field measurements affecting all existing construction, wiring, piping, and equipment in this Contract and shall be solely responsible for proper fit between all Work under the Contract and existing structures, piping, and equipment.
  2. Dimensions given on the drawings related to existing structures are based upon existing construction record drawings and it shall be the responsibility of the Contractor to verify the accuracy of all dimensions shown for existing structures, piping, and equipment. Any discrepancies shall be brought to the attention of the Engineer prior to the start of new construction or ordering of any materials. Contractor shall be responsible for any materials ordered that will not fit due to the failure to verify any discrepancies of existing structures, piping, and equipment prior to the start of new construction.
- M. Existing Utilities:
1. Existing underground utilities, as shown on the drawings, are located in accordance with available data but locations shall be determined by the Contractor prior to beginning construction. A utility locate is required prior to any excavation.
  2. Contractor shall protect all existing utilities and provide temporary removal and replacement or relocation as required for completion of the Work in the contract documents. No additional payment shall be made for this work.
  3. Existing utilities not shown on the drawings and requiring relocation shall be exposed by the Contractor without damage. If damaged, the Contractor shall bear the responsibility and cost of repair or replacement.

- N. Environmental Resources:
1. Protect environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this Contract. Confine activities to areas defined by the contract documents.
  2. Prior to construction, identify all land resources to be preserved within the work area. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without permission from the Owner. Do not fasten or attach ropes, cables, or guys to trees for anchorage unless specifically authorized, or where special emergency use is permitted.
  3. Protect trees, shrubs, vines, grasses, land forms, and other landscape features shown on the drawings to be preserved by marking, fencing, or using other approved techniques.
  4. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's activities. Maintain temporary erosion and sediment control measures such as fencing, berms, dikes, drains, sedimentation basins, grassing, and mulching, until permanent drainage and erosion control facilities are completed and operative.

### 1.03 OWNER OCCUPANCY REQUIREMENTS

- A. Owner will occupy and utilize the existing sites during entire period of construction and shall operate the facilities as required to meet the demands of its customers at all times. Ensure that portions of Work undertaken can be completed to meet this requirement. Cleanliness is crucial and the Contractor shall maintain a clean and orderly site at all times.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations. Schedule all Work to accommodate this requirement. No interruption will be permitted which adversely affects the degree of service the Owner provides. Contractor shall provide temporary facilities and make temporary modifications as necessary to keep the facilities in operation during the construction period.
- C. Facility down time (if required for construction) during normal operating hours shall be pre-scheduled with Owner. Contractor must submit shutdown request in writing to Owner a minimum of 72 working hours in advance. Contractor shall allow 48 working hours between approval and shutdown for operator preparation. Owner may deny schedule if:
1. Contractor fails to follow request procedures.
  2. Anticipated daily production requirements cannot be met during normal operating hours.
  3. Other considerations cannot be met.
- D. Work requiring planned facility shutdown, once undertaken, must be substantially completed to permit restart of facility within scheduled time. Critical Work

elements may require continuous, non-stop work during or throughout the night to complete within schedule.

- E. Pre-plan, schedule, coordinate, and stage for required materials, manpower, contractors, subcontractors, etc. to complete critical elements of Work.
- F. Schedule and stage critical elements of Work so as to maintain maximum facility capacity during construction. Coordinate, plan, and execute Work to minimize facility treatment capacity reduction and duration.
- G. Existing materials and equipment removed and not reused as part of the Work, and not identified elsewhere in the contract documents for salvage, shall be properly disposed of by the Contractor at no additional cost to Owner.

#### 1.04 ACCESS TO STREETS AND HIGHWAYS

- A. Maintain suitable means of access for property owners abutting streets and highways involved in construction, except as specifically permitted otherwise by Owner.
- B. Whenever construction is stopped due to inclement weather, weekends, holidays, or other reasons, suitable access shall be provided for all property owners.
- C. Maintain access for firefighting equipment and access to fire hydrants.
- D. See Section 01 55 00 for additional requirements.

### **PART 2 PRODUCTS**

NOT USED

### **PART 3 EXECUTION**

NOT USED

**END OF SECTION**

**SECTION 01 15 00**  
**SPECIAL PROVISIONS**

The following Special Provisions shall be incorporated into the Work:

A. WORK SEQUENCE

B. UNIFLANGE RESTRICTION

1. Uniflanges are not permitted for installation on piping exceeding internal pressures of 40 psi.

C. UTILITY LOCATION AND PROTECTION

1. The approximate location of known existing underground utility lines and trenches are shown on the plans. Other unknown utilities may exist. The General Contractor shall be responsible for coordinating with all utility companies for location of buried utilities prior to excavation. All costs associated with the measures necessary for location and protection of all utilities during construction shall be considered incidental to the contract. All damage to utilities resulting from construction activities shall be the sole responsibility of the Contractor performing the Work and be repaired at such Contractor's expense.
2. All bracing for light/utility poles, telephone lines, gas lines, etc. required during open excavations shall be coordinated by and the responsibility of the General Contractor. All costs of equipment, vehicles, personnel, or private service shall be incidental to the cost of the project.

D. DUST CONTROL

1. Contractor shall take all measures necessary to control dust within the project limits. Contractor shall keep all haul roads/streets and all streets adjacent to the project clean and free of dirt and debris. These streets will be subject to dust control measures as requested by Engineer or Owner during construction.
2. Streets that are disturbed by construction and have a temporary gravel surface shall have dust controlled and frequencies of water application shall be conveyed by the Engineer or Owner. Contractor is responsible for the application of all dust control measures, incidental to the contract. Owner will supply the water.
3. Payment shall be incidental to the contract.

E. DEWATERING

1. The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all water entering excavations and trenches at no additional cost to Owner. Excavations and trenches shall be maintained dry during sub-grade preparation and continually thereafter until the structure is built or the pipe is installed (to the extent that no damage from hydrostatic pressure, flotation, or other detrimental effects will result).
2. All excavations or trenches below groundwater elevation shall be dewatered by

lowering the water surface 12 inches below the bottom of the excavation. Surface water shall be diverted or otherwise prevented from entering excavations or trenches.

3. The Contractor shall obtain all dewatering permits to remove and dispose of water at no additional cost to Owner. The permits shall be obtained prior to the start of construction. Pumping to dewater is subject to the Water Appropriations Act.
4. All costs associated with dewatering shall be incidental to the Contract.

#### F. EROSION CONTROL

1. Erosion control is mandated on all construction projects by the North Dakota Department of Health under the National Pollutant Discharge Elimination System (NPDES.) The CONTRACTOR will be required to enter into NPDES storm water permit coverage with the OWNER for the project. A Storm Water Pollution Prevention Plan (SWPPP) shall be submitted by the Contractor. Erosion control measures shall be established by the Contractor at the beginning of construction and maintained during the entire project. Areas that are subject to severe erosion and off-site areas vulnerable to damage from erosion and/or sedimentation are to receive additional erosion control measures that may not be shown on the SWPPP. Failure to implement the controls and practices will result in violation of the Environmental Protection Act and Clean Water Act and is grounds for penalties. Contractor is responsible for all penalties for violations. Contractor shall be responsible for maintenance of erosion and sediment resulting from construction from the project. All land-disturbing activities shall be coordinated and conducted so as to minimize the size of the area to be exposed at any one time and to minimize the time of exposure. All land-disturbing activities shall also be coordinated and conducted so as to minimize off-site sedimentation damage. Contractor shall be responsible for periodically cleaning out and disposing of all sediment. Contractor shall also be responsible for cleaning out and disposing of all sediment at the completion of the project. Additional on-site protection may be needed so that sediment is not permitted to leave the project confines due to unforeseen conditions or accidents. The contractor is responsible for removing the temporary erosion and sediment control devices and verifying the cleaning out of all storm drainage structures, including flumes, pipes, and ditches once final stabilization has occurred. Contractor shall maintain temporary erosion control devices until permanent facilities are constructed and final stabilization has occurred. All erosion control measures shall be incidental to the other bid items.

#### G. TREE PROTECTION, REMOVAL AND REINSTALL, OR REPLACEMENT

1. The General Contractor is responsible for protection and care of trees within the construction limits of the Project unless otherwise indicated on the drawings. Trees identified for protection but damaged or killed as a direct result of construction activities will be replaced. Replacement of damaged trees must be of equal quality, size, and type of tree removed and grubbed during construction. If removal and reinstallation is allowed, the Contractor shall be responsible for the following provisions:
  - a. Contractor is responsible for finding a holding area for temporary planting.
  - b. After planting at temporary holding area, work loose soil into area between



the hole and tree plug to fill all air cavities. Contractor is responsible for watering and maintaining health of tree.

- c. Add 3-inch layer organic mulch to surface of root ball.
- d. Repeat procedure when transplanting tree to original site. Owner has final decision for location of permanent placement.
- e. Contractor is responsible for the health of the trees. Trees that die during temporary or permanent transplanting shall be replaced with equal quality, size, and type of tree at Contractor's expense.

H. PROJECT WORK

- 1. Other projects are anticipated to be under construction concurrently with this project. Contractor shall coordinate the Work of this Project with the City, Staff, Engineer, and other Contractors, as applicable, so as not to impede or otherwise unreasonably interfere with the Work of other projects.

I. TEMPORARY WATER SERVICE CONNECTIONS

- 1. The contractor shall maintain water services to all residents at all times except for short periods when making the new connection. The contractor shall notify the residents 24 hours in advance when water service will be disconnected. The contractor must provide for continuous water service to adjacent property. Any method used must have the approval of the engineer. If the contractor elects to set up a temporary water supply, polyethylene pipe or another pipe approved by the engineer must be used. Rubberized garden hose may not be used. The size of the existing service lines is unknown. The new service lines shall be 1-inch diameter at a minimum or as noted on plans. All connections and fittings required to connect the new service lines to the existing service lines shall be considered incidental. The contractor shall be responsible to locate the water service line from the existing curb stop to the location of the tap on the existing watermain.

J. LEAD SERVICE LINE REPLACEMENT

- 1. All lead service lines indicated in the plans and specifications shall be replaced up to the existing meter within the house. Contractor shall give the home owner a 1 week notice and shall receive permission to enter into the house prior to commencing work.

K. CENTRAL AVE AND MAIN STREET SURFACE RESTORATION

- 1. All surface restoration done as part of the project to Central Ave and Mainstreet shall be done with recycled asphalt pavement (RAP)
- 2. RAP design specification shall comply with NDDOT Specifications, latest edition at a rate between 35 percent of the mix, by weight.

**END OF SECTION**

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**SECTION 01 19 00**  
**CONTRACT CONSIDERATIONS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Schedule of Values.
  - 2. Alternates.
  - 3. Schedule of Alternates.
  
- B. Related Sections include; but are not limited to:
  - 1. Section 01 27 00 – Applications for Payment.
  - 2. Section 01 28 00 – Modification Requirements.
  - 3. Section 01 33 00 – Submittals.
  - 4. Section 01 60 00 – Material and Equipment.

1.02 SCHEDULE OF VALUES

- A. Submit:
  - 1. Typed schedule of values, as listed in the Bid Form, in format similar to EJCDC Application for Payment (form C-620, 2013 Edition).
  - 2. In duplicate within 15 days after date of Owner-Contractor Agreement.
  
- B. Format:
  - 1. Utilize the Table of Contents within Contract Documents.
  - 2. Identify line items corresponding with number and title of Specification Section.
  - 3. Identify site mobilization, bonds and insurance.
  - 4. Include within each line item, a direct proportional amount of Contractor's overhead and profit.
  
- C. Revise schedule to list approved Change Orders, with each Application for Payment.

1.03 ALTERNATES

- A. Alternates quoted on Bid Form will be reviewed and accepted or rejected at the Owner's option.
  
- B. Accepted Alternates will be identified in Owner-Contractor Agreement.
  
- C. Coordinate related Work and modify surrounding Work as required to accommodate Alternate(s) selected.
  
- D. Alternates shall include all Work and materials necessary for proper installation of the Alternate Work.

1.04 SCHEDULE OF ALTERNATES

A. Not Used.

**PART 2 PRODUCTS**

A. Not Used.

**PART 3 EXECUTION**

A. Not Used.

**END OF SECTION**

**SECTION 01 20 00**  
**MEASUREMENT AND PAYMENT**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Measurement and payment criteria applicable to the Work.
  - 2. Defect assessment and non-payment for rejected Work.
  
- B. Related Sections include; but are not limited to:
  - 1. C200 Instructions to Bidders.
  - 2. C410 Bid Form.
  - 3. C700 General Conditions.
  - 4. C800 – Supplementary Conditions.
  - 5. Section 01 15 00 – Special Provisions.

1.02 AUTHORITY

- A. Items of Work described herein are specifically listed in the Bid Form for separate measurement and payment.
  
- B. The Engineer and Owner will take all measurements and compute quantities accordingly.
  
- C. The Engineer and Owner will make final determinations regarding the completeness of Work, and subsequent payment of such Work.
  
- D. Contractor shall assist by providing necessary supporting data as required.

1.03 UNIT QUANTITY BID ITEMS

- A. Items and quantities indicated in the Contract Documents are for Bidding and Contract purposes. Quantities and measurements supplied or placed in the Work as verified and accepted by the Engineer determine payment. Provide the required items at the sum/price contracted.
  
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit prices contracted.
  
- C. No other items of Work required by the Drawings or Specifications shall be measured or paid for separately, but shall be included as part of the listed unit price to which the Work pertains. Failure to list all such related Work in the following descriptions of unit price items shall not invalidate this stipulation nor relieve the Contractor from his obligation for such Work.
  
- D. Bid quantities have typically been rounded for convenience of Bidding. Final payment will be based on the actual quantities of Work items completed except for Work items specifically stated to be paid for at plan quantity.

- E. Measurement will be made of actual quantities approved, installed, and accepted subject to limitations outlined as follows:
  - 1. New concrete, asphalt, gravel, sidewalk, driveways, and topsoil shall be formed, placed, graded, and finished to complete restoration in accordance with the Drawings and Specifications.
  - 2. Quantities of surface replaced will be based on the construction limit boundary shown on the Drawings.
  - 3. No payment will be made for removals or replacements outside the specified Work limits as shown on the Drawings.
  - 4. Extra surface restoration shall be paid for only when prior written authorization is given by Engineer.

#### 1.04 PAYMENT

- A. Payment Includes: Full compensation for all required mobilization, bonding, insurance, submittals, labor, skill, products, tools, equipment, transportation, services, incidentals, erection, clean-up, restoration, application and installation of the Work; submittal of shop drawings, product data and operation and maintenance data or manuals, record data, start-up and system demonstration, training where required; warranties, overhead and profit.
- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer and Owner, multiplied by the unit price for Work incorporated in or made necessary by the Work.

#### 1.05 DEFECT ASSESSMENT

- A. Replace the Work or portions of the Work not conforming to specified requirements at no additional cost to the Owner.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct one of the following remedies:
  - 1. The defective Work may remain, but the price will be adjusted to a new price at the discretion of the Engineer and Owner.
  - 2. The defective Work will be partially repaired to the satisfaction of the Engineer and Owner, and the price will be adjusted at the discretion of the Engineer and Owner.
- C. The authority of the Engineer and Owner to assess the defect and determine payment adjustment is final.

#### 1.06 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
  - 1. Products wasted or disposed of in a manner that is not acceptable.
  - 2. Products determined as unacceptable before or after placement.
  - 3. Products not completely unloaded from the transporting vehicle.
  - 4. Products placed beyond the lines and levels of the required Work.
  - 5. Products remaining on hand after completion of the Work.
  - 6. Loading, hauling, and disposing of rejected Products.

## 1.07 DESCRIPTION OF UNIT PRICES

### A. BONDING; lump sum (l.s.):

This item shall consist of all bonding and insurance for all Work. The bonding and insurance shall be limited to three percent (3%) of the total Contract Bid Price.

### B. MOBILIZATION; lump sum (l.s.):

1. This item shall consist of all Work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to and from the Project Site; for the establishment and subsequent removal of all offices and storage facilities, Contractor's buildings, and other facilities necessary for Work on the project; and for all licenses, fees, and permits; and for all other Work and operations which must be performed, or costs incurred, prior to beginning and after completion of Work on the various items on the Project Site.
2. When partial payments are made on the contract, payment for mobilization will be made according to the following schedule:
  - a. When 5 percent of the original contract amount is earned, 25 percent of the amount bid for mobilization, or 1-½ percent of the original contract amount, whichever is less, will be paid.
  - b. When 10 percent of the original contract amount is earned, 50 percent of the amount bid for mobilization, or 5 percent of the original contract amount, whichever is less, will be paid.
  - c. When 25 percent of the original contract amount is earned, 60 percent of the amount bid for mobilization, or 6 percent of the original contract amount, whichever is less, will be paid.
  - d. When 65 percent of the original contract amount is earned, 90 percent of the amount bid for mobilization, or 9 percent of the original contract amount, whichever is less, will be paid.
  - e. When 80 percent of the original contract amount is earned, 100 percent of the amount bid for mobilization, or 10 percent of the original contract amount, whichever is less, will be paid.
3. Upon completion of all Work on the Project, payment of any amount bid for mobilization in excess of 10 percent of the total contract amount will be paid.

### C. CLEARING AND GRUBBING; lump sum (l.s.):

1. The contractor will measure stumps by the average diameter of the stump at ground level. Stumps 6 inches in diameter or less will be included in the bid item. Price includes full compensations for all labor, equipment, tools, and all other items necessary to complete the work designated on the Plans or identified in the specifications and incidental to the completion of work as specified.

### D. TRAFFIC CONTROL; lump sum (l.s.):

1. Price includes all costs for furnishing, installing, maintaining, and removing all necessary traffic control devices such as temporary fencing, barricades and warning signs for the Work as set forth in the latest revision of the Manual of Uniform Traffic Control Devices and "Standard Highway Signs" and as described on the plans, in the specifications or as directed by the Engineer. Lump sum price includes maintaining access to all users including local traffic,

safety fencing, drums, cones, and conformance with North Dakota D.O.T. Provided all traffic control devices have been properly installed and maintained, payment for this item will be as follows:

- a. Percent payment will be equal to percent of project completion. When substantial completion has been met as determined by the engineer, 100 percent of the traffic control will be paid.

E. MATERIAL REMOVALS;

1. Unit prices include all costs for labor, material, and equipment for removing, transporting, and disposing of:
  - a. Concrete Pavement, square yard (s.y.)
  - b. Concrete Curb & Gutter, linear feet (l.f.)
  - c. Milling Pavement, square yard (s.y.)
  - d. Pipe, All Types and Sizes, linear feet (l.f.)
  - e. Aggregate Street Base, square yard (s.y.)
  - f. Silt Fence Unsupported, linear feet (l.f.)

Prices include all costs for consumables, tools, materials, landfill charges, cleaning, repair, and maintenance of haul routes, and all other necessary appurtenances.

Measurement will be made of actual unit price removed and disposed. No payment will be made for removal outside construction limits. Extra removal and disposal shall be measured and paid for only when prior written authorization is given by Engineer.

F. COMMON EXCAVATION:

1. Unit prices shall include all costs to excavate, load, haul, place and compact materials excavated on the project, and dispose of excess materials, including stockpiling when specified:
  - a. Common Excavation – Type A, cubic yard (c.y.)
  - b. Common Excavation – Waste, cubic yard (c.y.)

The volume will be calculated by comparing the preconstruction surface after topsoil stripping with the post-construction surface prior to topsoil placement.

G. FURNISH AND INSTALL PIPING; Payment for piping shall be made on the basis of the unit price bid.

1. PVC 8" WM (C-900 SDR-18), linear feet (l.f.) Linear feet measurements for payment shall be made on a horizontal plane, after installation, on the basis of the pipe stationing as determined by the installation surveys, with all stations carefully measured. Unit price includes all cost for furnishing; handling; laying; materials; pipe; miscellaneous fittings, couplings, detector tape, tracer wire, tracer wire boxes, plugs, outlets, harnessed mechanical joint and tierods, restrained coupling gland joints, spools, tie-rods, restraints and associated pipe joints; welding; trench excavation; top soil surface removal, topsoil stockpiling, topsoil hauling, topsoil/surface replacement, cleaning, dewatering; sheeting; shoring; bracing; pipe supports, locating existing utilities and pipe, trench boxes, protecting existing facilities, removal and disposal of existing pipe and appurtenances; thrust blocking or reaction backing; pipe bedding materials; special placement of bedding materials; polyethylene encasement; rock removal, backfilling with job excavated material or select backfill;



compaction; compaction testing; flushing; leakage and hydrostatic pressure testing; disinfection; bacteria testing; corporation stops, service saddles, plugs, caps, flush hydrants needed for disinfection and hydrostatic pressure testing; dechlorinating heavily chlorinated water from the disinfection of the watermain or proper disposal of heavily chlorinated water; providing temporary water services; recording as-built information; repair of utilities damaged by Contractor's operation; coordination of utility relocation by the utility company.

2. PVC 6" WM (C-900 SDR-18), linear feet (l.f.) Linear feet measurements for payment shall be made on a horizontal plane, after installation, on the basis of the pipe stationing as determined by the installation surveys, with all stations carefully measured. Unit price includes all cost for furnishing; handling; laying; materials; pipe; miscellaneous fittings, couplings, detector tape, tracer wire, tracer wire boxes, plugs, outlets, harnessed mechanical joint and tierods, restrained coupling gland joints, spools, tie-rods, restraints and associated pipe joints; welding; trench excavation; top soil surface removal, topsoil stockpiling, topsoil hauling, topsoil/surface replacement, cleaning, dewatering; sheeting; shoring; bracing; pipe supports, locating existing utilities and pipe, trench boxes, protecting existing facilities, removal and disposal of existing pipe and appurtenances; thrust blocking or reaction backing; pipe bedding materials; special placement of bedding materials; polyethylene encasement; rock removal, backfilling with job excavated material or select backfill; compaction; compaction testing; flushing; leakage and hydrostatic pressure testing; disinfection; bacteria testing; corporation stops, service saddles, plugs, caps, flush hydrants needed for disinfection and hydrostatic pressure testing; dechlorinating heavily chlorinated water from the disinfection of the watermain or proper disposal of heavily chlorinated water; providing temporary water services; recording as-built information; repair of utilities damaged by Contractor's operation; coordination of utility relocation by the utility company.
  
3. POLYETHYLENE 1" WATER SERVICE (250 PSI), linear feet (l.f.): Linear feet measurements for payment shall be made on a horizontal plane, after installation, on the basis of the pipe stationing as determined by the installation surveys, with all stations carefully measured. Unit price includes all cost for furnishing; handling; laying; materials; pipe; miscellaneous fittings, couplings, detector tape, plugs, outlets, harnessed mechanical joint and tierods, restrained coupling gland joints, spools, tie-rods, restraints and associated pipe joints; welding; trench excavation; top soil surface removal, topsoil stockpiling, topsoil hauling, topsoil/surface replacement, cleaning, dewatering; sheeting; shoring; bracing; pipe supports, locating existing utilities and pipe, trench boxes, protecting existing facilities, removal and disposal of existing pipe and appurtenances; thrust blocking or reaction backing; pipe bedding materials; special placement of bedding materials; polyethylene encasement; rock removal, backfilling with job excavated material or select backfill; compaction; compaction testing; flushing; leakage and hydrostatic pressure testing; disinfection; bacteria testing; corporation stops, service saddles , plugs, caps, flush hydrants needed for disinfection and hydrostatic pressure testing; dechlorinating heavily chlorinated water from the disinfection of the watermain or proper disposal of heavily chlorinated water; providing temporary water services; recording as-built information; repair of utilities damaged by

Contractor's operation; coordination of utility relocation by the utility company. The new service lines shall be 1-inch diameter at a minimum or as noted on plans. All connections and fittings required to connect the new service lines to the existing service lines shall be considered incidental. The contractor shall be responsible to locate the water service line from the existing curb stop to the location of the tap on the existing watermain.

- H. FURNISH AND INSTALL FITTINGS; each (ea.): Price includes all cost for furnishing, handling, laying, materials, fitting, polyethylene encasement, trench, excavation, dewatering, sheeting, shoring, bracing, bedding materials, special placement of bedding materials, backfilling with job excavated material or select backfill, compaction, compaction testing, flushing, leakage and hydrostatic pressure testing, sterilization, recording as-built information, utility repair of utilities damaged by Contractor's operation, and coordination of utility with utility company to furnish and install fittings as shown on the Drawings.

Includes removal, transportation, and disposal of excess excavated material; fugitive dust control; import of select backfill (if excavated material is unsuitable for compaction); and cleaning, repair, and maintenance of haul routes.

This bid item shall include all crosses, tees, reducers, bends, and other fittings necessary to connect pipes and valves. This item shall also include all additional fittings required to reroute pipelines around existing utilities in such cases where the utility cannot be relocated.

All necessary fittings smaller than shown on Bid Form shall be incidental. This bid item shall not include transition couplings required to connect to existing pipes and services. (Refer to "connect to existing").

Payment will be made for the sizes listed in the Bid Form.

- I. FURNISH AND INSTALL VALVES AND HYDRANTS; each (ea.): Unit price includes all costs for furnishing, handling, laying, setting, materials, appropriate ends, position indicators, gaskets, jointing materials, actuators, riser, box, and cover, trench adaptors, components and fittings, restrained couplings, Dresser couplings, stainless steel bolts/rods, polyethylene encasement, retainer glands, restraints, trench excavation, dewatering, sheeting, shoring, bracing, thrust blocking or reaction backing, valve blocking or restraints, resting block or concrete pad, bedding materials, special placement of bedding materials, backfilling with job excavated material or select backfill, compaction, compaction testing, flushing, leakage and hydrostatic pressure testing, sterilization, operating wrenches, recording as-built information, utility repair of utilities damaged by Contractor's operation, and coordination of utility with utility company to furnish and install valves as shown on the Drawings.

Includes removal, transportation, and disposal of excess excavated material; fugitive dust control; import of select backfill (if excavated material is unsuitable for compaction); and cleaning, repair, and maintenance of haul routes.

Payment will be made for various sizes listed in the Bid Form. Unit price for Hydrants includes fittings, pipe, and appurtenances to reach isolation valve.

- J. CURB STOP AND BOX; each (ea.): Price includes the cost of: furnishing and installing curb stop with water service line insulator including all necessary fittings; curb box assembly, concrete block; connection to water service pipe; pressure testing curb stop; final adjustment to curb box to finished grade and alignment; fittings and materials necessary to connect curb stop; removal of existing curb stop and box; and removal of water meter pit where required.
- K. PRECAST SANITARY STRUCTURE AND CASTING; each (ea.): Price includes all cost for supplying, handling, laying, and setting materials, precast concrete, manhole riser, manhole casting and ring, adjusting rings, base, mastic, excavation; dewatering; temporary bypass pumping, sheeting; shoring; bracing; bedding materials; special placement of bedding materials; backfilling with job excavated or select backfill; compaction testing; pipe couplings; recording as-built information; utility repair of existing utilities damaged by contractor's operation, pressure testing, and coordination of utilities with utility company to furnish and install new; manholes, drop manholes, air release valve manholes and check valve manhole as shown on Drawings.
- L. CONNECT TO EXISTING; each (ea.): Each price includes all costs for furnishing, handling, laying, materials, polyethylene encasement, trench excavation, trench dewatering, dewatering existing mains to nearest existing sectionalizing valve, modifications to existing piping, pipe, fittings, adaptors, restrained couplings, jointing materials, Dresser couplings, sheeting, shoring, bracing, removal and disposal of existing water main and appurtenances; thrust blocking or reaction backing, restraints, pipe bedding materials, special placement of bedding materials, backfilling with job excavated material or select backfill, compaction, compaction testing, flushing, leakage and hydrostatic pressure testing, providing temporary water services, recording as-built information, utility repair of utilities damaged by Contractor's operation, and coordination of utility with the utility company to furnish and install connections as shown on the Drawings.

Includes removal, transportation, and disposal of excess excavated material; fugitive dust control; import of select backfill (if excavated material is unsuitable for compaction); cleaning, repair, and maintenance of haul routes; plugging existing pipe end abandoned in place, and removal of existing thrust blocks encountered at the ends of the existing piping where connection needs to occur.

Payment will be made for various sizes listed in the Bid Form and includes transition couplings necessary to connect to existing water mains and services.

- M. SITE RESTORATION
  - 1. STABILIZED CONSTRUCTION ACCESS, each (ea): Price includes the cost for pipe, geosynthetic material, topsoil, and seed in the price bid for "stabilized Construction Access". 50% payment will be made of each access upon initial installation and the remaining 50% upon removal and restoration of the area to its original condition.
  - 2. SUBGRADE PREPARATION; station (sta): Price includes the cost of

scarifying, shaping, compacting, and maintaining the subgrade before construction a base, or surface course. in the price bid for subgrade preparation items. Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

3. GEOTEXTILE FABRIC; square yard (s.y): Price includes all cost for furnishing all materials, equipment, labor, and incidentals to complete the work as specified. The measurement will be based on complete and in place. Overlaps, drainage, or cutoffs shall not be applied to the quantity.
4. CONCRETE SIDEWALK – 4” Thickness; square foot (s.f.): Unit price includes all costs for labor, skill, tools, materials, handling, and equipment required for; subgrade preparation and material; furnishing, producing, loading, hauling, transportation fees, scale weighing, handling, depositing, laydown, spreading, and finishing aggregate base course; fitting, handling, and protection of existing facilities required to install: formwork, contraction joints, expansion materials, reinforcement, concrete roadway, drainage, sampling, testing, curing and protection, removal of formwork, cleaning, incidental labor, disposal of waste materials; and all other appurtenances necessary to furnish and install concrete sidewalk as indicated on the Drawings.

All concrete sidewalks behind and/or adjacent to a driveway shall be 6” thick and paid for under the 6” concrete driveway pay item.

Measurement and payment for this item will be for actual area approved, installed, and accepted. Additional sidewalk shall be measured and paid for only when prior written authorization is given by Engineer.

5. CONCRETE DRIVEWAY; square foot (s.f.): Price includes all costs for labor, skill, tools, materials, handling, surveying, and equipment for; required over excavation and fill, subgrade preparation and material; furnishing, producing, loading, hauling, transportation fees, scale weighing, handling, depositing, laydown, spreading, and finishing; concrete; aggregate, reinforcing material, expansion joints and related material, control joints, forms, concrete equipment, mix control, mix design, mixing, spot leveling, curing and curing compounds, water, maintaining, grading, sampling, testing, materials; cleanup; disposal of waste materials; and all other appurtenances necessary to furnish and install concrete driveway restoration as indicated on the Drawings. Concrete truck tickets for each truck shall be delivered to Engineer.
6. CONCRETE CURB AND GUTTER; linear foot (l.f.): Unit price includes all costs for labor, skill, tools, materials, handling, and equipment required for; subgrade preparation and material; furnishing, producing, loading, hauling, transportation fees, scale weighing, handling, depositing, laydown, spreading, and finishing new aggregate base course; fitting, handling, and protection of existing facilities, formwork, testing of concrete and compaction, dowels, contraction joints, expansion materials, concrete, concrete testing, finish work, curing and protection, and backfilling needed to match existing surface drainage, removal of formwork, cleaning, incidental labor, disposal of waste materials; and all other appurtenances necessary to furnish and install

concrete curb and gutter as indicated on the Drawings. Price also includes raising, lowering, leveling, adjusting, or removing all manhole castings, water valve risers, sewer cleanouts, storm sewer inlets, and other utilities to match new pavement profile.

Measurement will be made of actual length approved, installed, and accepted by Engineer. Additional curb and gutter installation shall be measured and paid for only when prior written authorization is given by Engineer. No payment will be made for unauthorized curb and gutter placement.

7. CONCRETE VALLEY GUTTER; square foot (s.f.): Price includes all costs for labor, skill, tools, materials, handling, surveying, and equipment for; required over excavation and fill, subgrade preparation and material; furnishing, producing, loading, hauling, transportation fees, scale weighing, handling, depositing, laydown, spreading, and finishing; concrete; aggregate, reinforcing material, expansion joints and related material, control joints, forms, concrete equipment, mix control, mix design, mixing, spot leveling, curing and curing compounds, water, maintaining, grading, sampling, testing, materials; cleanup; disposal of waste materials; and all other appurtenances necessary to furnish and install concrete valley gutter restoration as indicated on the Drawings. Concrete truck tickets for each truck shall be delivered to Engineer.
8. STREET BASE – 6” or 12” Thickness (Type A3, Class 5 Aggregate); square yard (s.y.): Unit price includes all costs for submittals; labor, products, material and equipment for removing, transporting, and disposing of existing subgrade and base; furnishing, stockpiling, and protection; cleaning, repair, and maintenance of haul routes; labor, installation, products, material, and equipment for restoration, including blending, subgrade preparation, compaction, and testing; hauling, placing, compaction, grading, and testing of virgin class 5 aggregate and/or blended materials required for the placement of pavement surfaces.

Blended materials refer to uniform blended mixture of virgin Type A3 Class 5 aggregate material with reclaimed asphalt millings at a maximum blend of 50% millings. Refer to section 01015 Special Provisions.

9. BITUMINOUS PAVEMENT – 5” Thickness; square yard (s.y.): Unit price includes all costs for labor, skill, tools, materials, handling, surveying, and equipment for; required over excavation and fill, subgrade preparation and material; furnishing, producing, loading, hauling, transportation fees, scale weighing, handling, depositing, laydown, spreading, and finishing new aggregate base course; prime and tack oil; aggregate, bitumen, paving and hot bituminous equipment, mix control, mix design, heating, mixing, spot leveling, curing, water, rolling, compacting, maintaining, grading, sampling, testing, materials; cleanup; disposal of waste materials; and all other appurtenances necessary to furnish and install asphalt pavement road restoration as indicated on the Drawings. Certified scale tickets for each truck

10. HYDROSEEDING AND MAINTENANCE; square yard (s.y.): Price includes all costs for labor, materials, bed preparation, maintenance of topsoil, fertilizer, herbicide, seed, maintenance, watering; and incidentals for re-establishing vegetation. Measurement and payment for this item will be for actual area installed as approved and accepted by the Engineer. No payment will be made for unauthorized seeding outside the specified limits.
11. TOPSOIL – 4” Thickness; square yard (s.y.): Unit price includes all costs for submittals; labor, materials, products, storage, protection, and equipment for removing, stripping, loading, transporting, and stockpiling topsoil; cleaning, removal and proper disposal of all excavated materials where necessary; cleaning, repair, and maintenance of haul routes; labor, and all else required for complete excavation and salvage of topsoil materials.
12. DETECTABLE WARNING PANELS; square foot (s.f.): Unit price includes all labor, material, equipment, and incidentals necessary to complete the work, including but not limited to bedding material, repairs, surface preparation, restoration of substrate surface and cleanup.

#### 1.08 CHANGES IN PLAN QUANTITY

- A. Plan quantities are based on assumed existing conditions and/or as stated in payment articles. An increase or decrease from the number of units shown in the Bid Schedule shall not cause a change in the price except as allowed by the Contract Documents.

#### 1.09 MAXIMUM PAYMENTS

- A. Maximum Payment Width: payment for surface restoration shall not exceed the widths shown on the Drawings including asphalt, concrete, sidewalk, curb and gutter, seeding, and sodding. If necessary, the Contractor shall reduce trench width to protect trees, sidewalk, or curb and gutter running longitudinally with the trench. The width stated is maximum restoration payment width only. If the Contractor deems it necessary to disturb greater than the construction limits, he or she may do so with all additional costs paid by the Contractor.

#### 1.10 INCIDENTAL ITEMS

- A. Work required by the Contract Documents but not listed as a Bid Item shall be included in the cost for the item to which the Work pertains.

#### 1.11 CLEAN-UP AND SURFACE RESTORATION

- A. Clean-up and restoration of all Work areas, storage areas, and traffic routes shall be considered incidental to the Contract, and shall be performed as required and as directed by the Owner or Engineer.
- B. Repair of new or existing surfaces or features damaged by Contractor's Work operations shall be performed incidental to the Contract, and shall consist of restoration in-kind to the satisfaction of the Owner and Engineer.

**PART 2 PRODUCTS**

Not Used.

**PART 3 EXECUTION**

Not Used.

**END OF SECTION**

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**SECTION 01 25 00**  
**SUBSTITUTION PROCEDURES**

**PART 1 GENERAL**

1.01 SUMMARY

- A. This section defines the procedures for proposing substitute items by "Approved Equivalent" manufacturers not listed in the specifications
- B. Acceptance of "Approved Equivalent" manufacturers will be done by addendum to the bidding documents prior to bid date and time.

1.02 QUALIFICATIONS PACKAGE FOR NON-LISTED "APPROVED EQUIVALENT" PRODUCT CONSIDERATION

- A. Bidders shall submit a qualification package at least fifteen (15) days prior to the date of receipt of bids for each proposed "Approved Equivalent" manufacturer not already listed as an acceptable or approved "manufacturer" in the specifications, which the Bidder proposes to furnish. Each qualification package shall be bound with protective cover, identified by specification section number and title, and the product manufacturer's name. The Bidder shall submit all qualification packages in a sealed, sturdy box or suitable container.
- B. Qualification packages for non-listed "Approved Equivalent" items shall include the following: (if an item does not apply, indicate so in the submittal):
  - 1. Completed Substitution Request Form. A copy of which can be found attached to the end of this section.
  - 2. A complete set of drawings, specifications, catalog cut-sheets, and detailed descriptive material. This information shall identify all technical and performance requirements stipulated on each drawing and in each specification section. Include all items required for shop drawing review.
  - 3. Provide marked-up product information showing side-by-side comparisons for both the specified products and proposed products
- C. Failure to furnish the preceding information at least fifteen (15) days prior to the date of receipt of bids shall be cause for rejection of a proposed alternate item for use on this project.
- D. No "Approved Equivalent" items will be considered unless, in the opinion of the ENGINEER, they conform to the Contract Documents in all respects, except for make and manufacturer and minor details.
- E. The ENGINEER shall be the sole authority for determining conformance of a proposed "Approved Equivalent" item with the Contract Documents. Except for identification of non-compliance with the specifications, the ENGINEER will not be required to prove that an "Approved Equivalent" item is not equal to "Basis of Bid" items.
- F. Substitutions or modifications to the qualification package will not be considered after opening of Bids.

- G. Acceptance of "Approved Equivalent" items and their qualification packages, does not eliminate the need for shop drawing submittals and reviews during construction, nor does it eliminate the requirement that the seller satisfy the requirements of the Contract Documents.

1.03 BID REQUIREMENTS

- A. Bidders proposing to furnish "Approved Equivalent" items that require changes to the Contract Documents shall notify the Engineer in writing of all process, mechanical, electrical, and structural changes and requirements for incorporating the "Approved Equivalent" into the Project and shall reimburse the OWNER for associated redesign costs. Redesign and contract drawing revisions to accommodate the "Approved Equivalent" will be prepared by the ENGINEER during the shop drawing review process. Reimbursement shall be based on the ENGINEER'S standard hourly rates plus reimbursable expenses at cost.

**PART 2 PRODUCTS**

NOT USED

**PART 3 EXECUTION**

NOT USED

**END OF SECTION**

**SECTION 01 27 00**  
**APPLICATIONS FOR PAYMENT**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Format and Preparation of Applications.
  - 2. Submittal Procedures.
  - 3. Substantiating Data.
  
- B. Related Sections include; but are not limited to:
  - 1. Document 00 50 00 – Agreement Form.
  - 2. Section 00 70 00 – General Conditions.
  - 3. Section 01 19 00 – Contract Considerations.
  - 4. Section 01 28 00 – Modification Requirements.
  - 5. Section 01 33 00 – Submittals.
  - 6. Section 01 77 00 – Contract Closeout.

1.02 FORMAT AND PREPARATION OF APPLICATIONS

- A. Utilize: EJCDC Application for Payment Form (form C-620, 2013 Edition) or format acceptable to Engineer.
  
- B. Preparation
  - 1. Present required information in typewritten form.
  - 2. Execute certification by signature of authorized officer.
  - 3. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored Products.
  - 4. List each authorized Change Order as an extension on Continuation Sheet, listing Change Order number and dollar amount as for an original item of Work.
  
- C. Prepare Application for Final Payment as specified in Section 01 77 00.

1.03 SUBMITTAL PROCEDURES

- A. Submittals
  - 1. Three (3) copies of each Application for Payment. Electronic Submittal will be accepted.
  - 2. Updated construction schedule with each Application for Payment.
  - 3. Payment Periods: As stipulated in the Agreement.
  - 4. Submit with transmittal letter as specified for Submittals in Section 01 33 00.
  - 5. Submit lien waivers with final application for payment.

1.04 SUBSTANTIATING DATA

- A. When Engineer requires substantiating information, submit data justifying dollar amounts in question.
- B. Provide one (1) copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.
- C. Provide copies of invoice(s) for payment of contractor furnished materials incorporated into Work **OR** stored on-Site. Payment will not be made for materials which are not stored on-Site or stored in a facility not approved by Engineer and Owner.

**PART 2 PRODUCTS**

- A. Not Used.

**PART 3 EXECUTION**

- A. Not Used.

**END OF SECTION**

**Contractor's Application for Payment**

<b>Owner:</b> _____	<b>Owner's Project No.:</b> _____
<b>Engineer:</b> _____	<b>Engineer's Project No.:</b> _____
<b>Contractor:</b> _____	<b>Contractor's Project No.:</b> _____
<b>Project:</b> _____	
<b>Contract:</b> _____	
<b>Application No.:</b> _____	<b>Application Date:</b> _____
<b>Application Period:</b> From _____ to _____	

1. Original Contract Price	#REF!
2. Net change by Change Orders	#REF!
3. Current Contract Price (Line 1 + Line 2)	#REF!
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total)	#REF!
5. Retainage	
a. _____ X #REF! Work Completed	#REF!
b. _____ X #REF! Stored Materials	#REF!
c. Total Retainage (Line 5.a + Line 5.b)	#REF!
6. Amount eligible to date (Line 4 - Line 5.c)	#REF!
7. Less previous payments (Line 6 from prior application)	
8. Amount due this application	#REF!
9. Balance to finish, including retainage (Line 3 - Line 4)	#REF!

**Contractor's Certification**

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

**Contractor:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

<b>Recommended by Engineer</b>	<b>Approved by Owner</b>
<b>By:</b> _____	<b>By:</b> _____
<b>Title:</b> _____	<b>Title:</b> _____
<b>Date:</b> _____	<b>Date:</b> _____
<b>Approved by Funding Agency</b>	
<b>By:</b> _____	<b>By:</b> _____
<b>Title:</b> _____	<b>Title:</b> _____
<b>Date:</b> _____	<b>Date:</b> _____

**Progress Estimate - Unit Price Work**

**Contractor's Application for Payment**

Owner: \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Contract: \_\_\_\_\_

Owner's Project No.: \_\_\_\_\_  
 Engineer's Project No.: \_\_\_\_\_  
 Contractor's Project No.: \_\_\_\_\_

Application No.: \_\_\_\_\_ Application Period: From \_\_\_\_\_ to \_\_\_\_\_ Application Date: \_\_\_\_\_

A	B	C	D	E	F	G	H	I	J	K	L
Bid Item No.	Description	Contract Information				Work Completed		Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)				
Original Contract											
					-		-		-		-
					-		-		-		-
					-		-		-		-
					-		-		-		-
					-		-		-		-
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					-		-		-		-
					-		-		-		-
					-		-		-		-
<b>Original Contract Totals</b>					\$	-		\$	-	\$	-

**Progress Estimate - Unit Price Work**

**Contractor's Application for Payment**

Owner: \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Contract: \_\_\_\_\_

Owner's Project No.: \_\_\_\_\_  
 Engineer's Project No.: \_\_\_\_\_  
 Contractor's Project No.: \_\_\_\_\_

Application No.: \_\_\_\_\_ Application Period: From \_\_\_\_\_ to \_\_\_\_\_ Application Date: \_\_\_\_\_

A	B	C	D	E	F	G	H	I	J	K	L	
Bid Item No.	Description	Contract Information			Work Completed			Materials Currently Stored (not in G) (\$)	Work Completed and Materials Stored to Date (H + I) (\$)	% of Value of Item (J / F) (%)	Balance to Finish (F - J) (\$)	
		Item Quantity	Units	Unit Price (\$)	Value of Bid Item (C X E) (\$)	Estimated Quantity Incorporated in the Work	Value of Work Completed to Date (E X G) (\$)					
<b>Change Orders</b>												
					-		-		-		-	
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					-		-		-		-	
<b>Change Order Totals</b>					\$	-	\$	-	\$	-	\$	-
<b>Original Contract and Change Orders</b>												
<b>Project Totals</b>					\$	-	\$	-	\$	-	\$	-

**Stored Materials Summary**

**Contractor's Application for Payment**

Owner: _____	Owner's Project No.: _____
Engineer: _____	Engineer's Project No.: _____
Contractor: _____	Contractor's Project No.: _____
Project: _____	
Contract: _____	

Application No.: \_\_\_\_\_ Application Period: From \_\_\_\_\_ to \_\_\_\_\_ Application Date: \_\_\_\_\_

A	B	C	D	E	F	G	H	I	J	K	L	M	
Item No. (Lump Sum Tab) or Bid Item No. (Unit Price Tab)	Supplier Invoice No.	Submittal No. (with Specification Section No.)	Description of Materials or Equipment Stored	Storage Location	Application No. When Materials Placed in Storage	Materials Stored			Incorporated in Work			Materials Remaining in Storage (I-L) (\$)	
						Previous Amount Stored (\$)	Amount Stored this Period (\$)	Amount Stored to Date (G+H) (\$)	Amount Previously Incorporated in the Work (\$)	Amount Incorporated in the Work this Period (\$)	Total Amount Incorporated in the Work (J+K) (\$)		
								-			-	-	
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								-			-	-	
<b>Totals</b>						\$	-	\$	-	\$	-	\$	-



**SECTION 01 28 00**  
**MODIFICATION REQUIREMENTS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Submittals.
  - 2. Documentation of Change in Contract Price and Contract Time.
  - 3. Change Procedures.
  - 4. Work Directive Change.
  - 5. Stipulated Price Change Order.
  - 6. Time and Material Change Order.
  - 7. Execution of Change Orders.
  - 8. Correlation of Contractor Submittals.
  
- B. Related Sections include; but are not limited to:
  - 1. Section 00 70 00 – C700 General Conditions.
  - 2. Section 01 19 00 – Contract Considerations.
  - 3. Section 01 27 00 – Applications for Payment.
  - 4. Section 01 33 00 – Submittals.
  - 5. Section 01 60 00 – Material and Equipment.
  - 6. Section 01 77 00 – Contract Closeout.

1.02 SUBMITTALS

- A. Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
  
- B. Change Order Forms: EJCDC form C941 (2018 Edition).

1.03 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

- A. Maintain detailed records of Work done on a time and material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs of changes in the Work.
  
- B. Document each quotation for a change in cost or time with sufficient data to allow evaluation of the quotation.
  
- C. Provide additional data to support computations:
  - 1. Quantities of products, labor, and equipment.
  - 2. Taxes, insurance, and bonds.
  - 3. Overhead and profit.
  - 4. Justification for any change in Contract Time.
  - 5. Credit for deletions from Contract, similarly documented.

- D. Support each claim for additional costs, and for Work done on a time and material basis, with additional information:
  - 1. Origin and date of claim.
  - 2. Dates and times work was performed, and by whom.
  - 3. Time records and wage rates paid.
  - 4. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

#### 1.04 CHANGE PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time by issuing supplemental instructions.
- B. The Engineer may issue a Proposal Request that includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications and a change in Contract Time for executing the change. Contractor will prepare and submit an estimate within seven (7) days.
- C. The Contractor may propose a change by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Documents any requested substitutions in accordance with Section 01 60 00.

#### 1.05 WORK DIRECTIVE CHANGE

- A. Engineer may issue a document, signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
- B. The document will describe changes in the Work, and will designate method of determining any change in Contract Price or Contract Time.
- C. Promptly execute the change in Work.

#### 1.06 STIPULATED PRICE CHANGE ORDER

- A. Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Engineer.

#### 1.07 TIME AND MATERIAL CHANGE ORDER

- A. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- B. Engineer will determine the change allowable in Contract Price and Contract Time as provided in the Contract Documents.
- C. Maintain detailed records of work done on Time and Material basis.
- D. Provide full information required for evaluation of proposed changes, and to

substantiate costs for changes in the Work.

1.08 EXECUTION OF CHANGE ORDERS

- A. Execution of Change Orders: Engineer will prepare the formal Change Order document(s) for signatures of parties as provided in the Conditions of the Contract.

1.09 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.
- B. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- C. Promptly enter changes in Project Record Documents.

**PART 2 PRODUCTS**

- A. Not Used.

**PART 3 EXECUTION**

- A. Not Used.

**END OF SECTION**

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## **SECTION 01 33 00**

### **SUBMITTALS**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Section Includes:
  - 1. Submittal Procedures.
  - 2. Construction Progress Schedules.
  - 3. Proposed Products List.
  - 4. Product Data.
  - 5. Shop Drawings.
  - 6. Samples.
  - 7. Test Reports.
  - 8. Manufacturer's Certificates.
  - 9. Manufacturer's Instructions.
  - 10. Manufacturer's Field Reports.
  
- B. Related Sections include; but are not limited to:
  - 1. Section 01 19 00 – Contract Considerations.
  - 2. Section 01 45 00 – Quality Control.
  - 3. Section 01 77 00 – Contract Closeout.

##### 1.02 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted form.
  
- B. Sequentially number the transmittal form. Submit revised submittals with original number and a sequential alphabetic suffix.
  
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.
  
- D. Completely review all submittal materials prior to submission to Engineer. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
  
- E. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items.
  
- F. For each submittal for review allow, at minimum, fifteen (15) days excluding delivery time to and from the Contractor.
  
- G. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work. Highlight and/or clearly designate specific Product details and information so as to confirm

Product meets or exceeds Product specifications.

- H. Provide space for Contractor and Engineer review stamps.
- I. When revised for resubmission, identify all changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements. Clearly transmit Engineer review comments to suppliers and subcontractors as required to minimize Product delivery errors and miscommunications.
- K. Submittals not requested will not be recognized or processed.

### 1.03 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate within 15 days after date of Owner-Contractor Agreement.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each major portion of Work or operation, identifying first workday of each week.
- E. Sheet Size: 11x17 inches.
- F. Content
  1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction. Indicate the early and late start, early and late finish, float dates, and duration.
  2. Identify Work of separate stages and other logically grouped activities.
  3. Provide sub-schedules to define critical portions of the entire schedule.
  4. Include conferences and meetings in schedule.
  5. Indicate estimated percentage of completion for each item of Work at each submission.
  6. Provide separate schedule of submittal dates for shop drawings, product data, and samples, and dates reviewed submittals will be required from Engineer. Allow sufficient time for review by Engineer. Indicate decision dates for selection of finishes.
  7. Coordinate content with Schedule of Values.
- G. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule.
- H. Distribution
  1. Distribute copies of reviewed schedules to Project Site file, SubContractors, suppliers, and other concerned parties.
  2. Instruct recipients to promptly report, in writing, problems anticipated by

projections indicated in schedules.

#### 1.04 PROPOSED PRODUCTS LIST

- A. Within fifteen (15) days after date of Owner-Contractor Agreement, submit list of major Products proposed for use, with name of manufacturer, trade name, and model number of each Product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

#### 1.05 PRODUCT DATA

- A. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record document purposes described in Section 01 77 00.
- C. Submit the number of copies that the Contractor requires, plus three (3) copies that will be retained by the Engineer.
- D. Mark each copy to identify applicable Products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

#### 1.06 SHOP DRAWINGS

- A. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
- B. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record document purposes described in Section 01 77 00.
- C. Submit the number of copies which Contractor requires, plus three (3) copies which will be retained by Engineer.

#### 1.07 TEST REPORTS

- A. Submit for the Engineer's record and for the Owner.
- B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.
- C. Retain one (1) copy of all test reports and results on-Site in a location accessible to Engineer.

#### 1.08 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application SubContractor, or the Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

#### 1.09 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. Refer to Section 01 45 00 - Quality Control, Manufacturers' Field Services article.

#### 1.10 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for the Engineer's records and for the Owner.
- B. Submit report in triplicate within 30 days of observation to Engineer for information purposes.
- C. Submit the manufacturer's field reports for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

### **PART 2 PRODUCTS**

- A. Not Used.

### **PART 3 EXECUTION**

- A. Not Used.

**END OF SECTION**



**SECTION 01 39 00**  
**COORDINATION AND MEETINGS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
1. Coordination and Project Conditions.
  2. Field Engineering.
  3. Prebid Meeting.
  4. Preconstruction Meeting.
  5. Progress Meetings.
  6. Site mobilization meeting.
  7. Pre-installation meeting.
- B. Related Sections Include; but are not limited to:
1. Section 01 10 00 – Summary of Project.
  2. Section 01 77 00 – Contract Closeout.

1.02 COORDINATION AND PROJECT CONDITIONS

- A. General:
1. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
  2. Verify utility requirements and characteristics of operating equipment are compatible with site utilities. Coordinate Work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
  3. Coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- B. Responsibilities of the Contractor:
1. Duties and responsibilities in scheduling and performance of the Work.
    - a. Allocate and coordinate use of Site for field offices and construction trailers and for access, traffic, and parking facilities.
    - b. Instruct and coordinate the use of temporary utilities and construction facilities.
    - c. Coordinate field engineering and layout Work.
  2. Verify all shop drawing dimensions.
  3. Submit (and revise) progress schedule in accordance with Section 01 33 00 coordinating the entire project construction schedule.
  4. Organize and submit Applications for Payment. Submit applications on EJCDC forms C620 (2018 Edition) for review by Engineer.
  5. Submit shop drawings, product data, and samples in accordance with Section 01 33 00.
  6. Submit request for interpretation of Contract Documents and obtain

- instructions through Engineer.
7. Process requests for Change Orders through Engineer.
  8. Organize all closeout submittals and preliminary inspection reports for transmittal to Engineer. Organize all record drawings and submit to Engineer. Review all drawings before submitting to Engineer.
  9. Notify Engineer when ready for final inspection and organize Substantial and Final inspections.
  10. Ensure punch list items are completed prior to scheduling final inspection by Engineer.
  11. Provide information required by Construction Coordinator for preparation of record drawings.

### 1.03 FIELD ENGINEERING

- A. Contractor shall field verify and confirm all dimensions and elevations. Notify Engineer concerning discrepancies.
- B. Contractor shall locate and protect survey control and reference points.
- C. Engineer shall provide field engineering services and equipment to establish baselines and benchmarks for grades, lines, and levels by use of recognized engineering survey practices. Contractor shall protect established survey markers from damage. Once established, Contractor shall obtain the services of a licensed surveyor to replace damaged or lost survey reference markers.
- D. Contractor shall maintain required elevations, lines, and levels utilizing recognized engineering practices. Contractor shall obtain the services of a licensed surveyor as required to ensure Work is in accordance with the grade and elevation shown on the Drawings.
- E. Site service utilities are shown in their approximate locations on the Drawings. Contractor shall be responsible for field verification of all utility locations as required to accommodate construction activities.
- F. Control datum for construction is that shown on Drawings.

### 1.04 PREBID MEETING

- A. Engineer may schedule a meeting at the Project Site prior to the Bid Date as specified in the Advertisement. Notification will be sent to planholders one week in advance for the time of the meeting.
- B. Attendees: Owner, Engineer, and prospective Contractors.
- C. Owner and Engineer will lead a tour to view the proposed Work and answer questions and/or concerns from prospective Contractors.

### 1.05 PRECONSTRUCTION MEETING

- A. Engineer will schedule a meeting at the Project Site after Notice of Award.

- B. Attendance required by:
  - 1. Construction Coordinator.
  - 2. Contractor(s).
  - 3. Contractor's Superintendent(s).
  - 4. Owner.
  - 5. Engineer.
  - 6. Major SubContractor(s).
  
- C. Agenda:
  - 1. Contract Forms and Conditions of the Contract.
  - 2. Distribution of Contract Documents.
  - 3. Submission of list of SubContractors, list of Products, Schedule of Values, and progress schedule.
  - 4. Designation of personnel representing the parties in Contract, and the Engineer.
  - 5. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - 6. Scheduling.
  
- D. Engineer will record minutes and distribute copies after meeting to participants.

#### 1.06 PROGRESS MEETINGS

- A. Engineer will:
  - 1. Schedule and administer meetings at the Site throughout progress of the Work at weekly intervals, or as deemed necessary by the Engineer.
  - 2. Make arrangements for hosting meetings.
  
- B. Attendance required by:
  - 1. Construction Coordinator.
  - 2. Contractor's Superintendent(s).
  - 3. Major SubContractors and suppliers.
  - 4. Owner.
  - 5. Engineer.
  - 6. Others as appropriate to agenda topics for each meeting.
  
- C. Agenda:
  - 1. Review minutes of previous meetings.
  - 2. Review of Work progress.
  - 3. Field observations, problems, and decisions.
  - 4. Identification of problems which impede planned progress.
  - 5. Review of submittals schedule and status of submittals.
  - 6. Review of off-site fabrication and delivery schedules.
  - 7. Maintenance of progress schedule.
  - 8. Corrective measures to regain projected schedules.
  - 9. Planned progress during succeeding Work period.
  - 10. Coordination of projected progress.
  - 11. Maintenance of quality and Work standards.
  - 12. Effect of proposed changes on progress schedule and coordination.
  - 13. Other business relating to Work.

D. Engineer will record minutes and distribute copies after meeting to participants.

**PART 2 PRODUCTS**

A. Not Used.

**PART 3 EXECUTION**

A. Not Used.

**END OF SECTION**

**SECTION 01 40 00**  
**CUTTING AND PATCHING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Requirements and limitations for cutting and patching of Work.
- B. Related Sections include; but are not limited to:
  - 1. Section 01 10 00 – Summary of Project
  - 2. Section 01 33 00 – Submittals.
  - 3. Section 01 60 00 – Materials and Equipment
  - 4. Individual Product Specification Sections:
    - a. Cutting and patching incidental to Work of other Sections.
    - b. Advance notification for openings required in Work related to other Sections.

1.02 SUBMITTALS

- A. Submit written request in advance of cutting or alteration which affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Work or operations of Owner or separate Contractor(s) as applicable.
- B. Include in request:
  - 1. Identification of Project.
  - 2. Location and description of affected Work.
  - 3. Necessity for cutting or alteration.
  - 4. Description of proposed Work and Products to be used.
  - 5. Alternatives to cutting and patching.
  - 6. Effect on work or operations of Owner or separate Contractor(s) as applicable.
  - 7. Written permission of affected separate Contractor(s) if applicable.
  - 8. Date and time Work will be executed.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Those required for original installation.
- B. Product Substitution: For any proposed change in materials, submit request for substitution in accordance with Section 01 60 00.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.
- B. After uncovering existing Work, assess conditions affecting performance of Work.
- C. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.
- B. Provide protection from elements for areas which may be exposed by uncovering work.
- C. Maintain excavations free of water.

### **3.03 CUTTING**

- A. Execute cutting and fitting to complete the Work.
- B. Uncover Work to install improperly sequenced Work.
- C. Remove and replace defective or non-conforming Work.
- D. Remove samples of installed work for testing, when requested.
- E. Coordinate openings in the Work for penetration of mechanical and electrical Work.
- F. Employ original installer of new Work to perform cutting for weather exposed and moisture resistant elements, and sight-exposed surfaces.
- G. Cut rigid materials, masonry, prestressed concrete, and concrete using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

### **3.04 PATCHING**

- A. Execute patching to complement adjacent Work.
- B. Fit Products together to integrate with other Work.
- C. Execute Work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.
- D. Employ original installer of new Work to perform patching for weather and moisture resistant elements, and sight-exposed surfaces.
- E. Restore Work with new Products in accordance with requirements of Contract

Documents.

- F. Fit Work air tight and water tight as appropriate to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- G. Identify any hazardous substance or condition exposed during the Work to the Engineer for decision or remedy.

### 3.05 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in Product sections; match existing Products and Work for patching and extending Work.
- B. Employ skilled and experienced installer to perform alterations.
- C. Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring Products and finishes to original or specified condition.
- D. Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- E. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Engineer for review.
- F. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- G. Finish surfaces as specified in individual Product Sections.

**END OF SECTION**

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**SECTION 01 45 00**  
**QUALITY CONTROL**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Quality Assurance - Control of Installation.
  - 2. Tolerances.
  - 3. References and Standards.
  - 4. Testing Services.
  - 5. Manufacturers' Field Services.
  
- B. Related Sections include; but are not limited to:
  - 1. Section 01 33 00 – Submittals.
  - 2. Section 01 60 00 – Material and Equipment.

1.02 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturer's instructions, including each step in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on Contract Drawings, shop drawings, or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

- C. Adjust Products to appropriate dimensions; position before securing Products in place.

#### 1.04 REFERENCES AND STANDARDS

- A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.
- C. Obtain copies of standards where required by Product specification sections.
- D. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### 1.05 TESTING SERVICES

- A. Contractor shall appoint, employ, and pay for specified services of an independent firm to perform testing including:
  - 1. Concrete materials and mix designs.
  - 2. Asphaltic materials and mix designs.
  - 3. Embedment and backfill materials.
  - 4. Concrete, slump, air, cylinders. Quantity determined by Engineer.
  - 5. Moisture-density (Proctor) and relative density tests on embedment and backfill materials. Quantity determined by Engineer.
  - 6. In-place field density tests on embedment and backfill materials. Quantity determined by Engineer.
  - 7. Bacteriological testing.
  - 8. All other tests and engineering data required for Engineer's review of materials and equipment proposed to be used in the Work. Contractor shall obtain Engineer's acceptance of the testing firms before having services performed, and shall pay all costs for these testing services. All costs for testing shall be incidental.
- B. The independent firm will perform tests and other services specified in individual specification sections and as required by the Engineer.
- C. Testing and source quality control may occur on or off the Site. Perform off-Site testing as required by the Engineer or the Owner.
- D. Reports will be submitted by the independent firm to the Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
  - 1. Notify Engineer and independent firm 48 hours prior to expected time for operations requiring services.
  - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing does not relieve Contractor from performing Work according to Contract requirements.
- G. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Engineer. Payment for re-testing will be paid by the Contractor.

#### 1.06 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and other services as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Refer to Section 01 33 00 – Submittals.

### **PART 2 PRODUCTS**

- A. Not Used.

### **PART 3 EXECUTION**

#### 3.01 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

#### 3.02 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate preparation, primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

**END OF SECTION**

**SECTION 01 55 00**  
**VEHICULAR ACCESS AND PARKING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Parking.
  - 2. Traffic Control.
  - 3. Haul Routes.
  - 4. Removal of Access Facilities
  
- B. Related Sections include:
  - 1. Section 01 10 00 – Summary of Work.
  - 2. Section 01 77 00 – Contract Closeout.

1.02 PARKING

- A. Contractor and personnel shall park all personal vehicles in an area acceptable to Owner and applicable property owners.
  
- B. Contractor shall provide and maintain a surface suitable for parking vehicles.

1.03 TRAFFIC CONTROL

- A. Contractor shall provide and maintain signs, warning lights, and barricades to adequately protect, warn, and protect the public from hazardous protrusions, materials, excavations, and equipment resulting directly or indirectly from construction activities.
  
- B. All traffic control devices including signs, warning lights, and barricades shall conform to the requirements of the Federal Manual on Uniform Traffic Control Devices.
  
- C. Traffic control setup and layout shall conform to requirements of the manual for Traffic Control Zone Layouts (field manual) and shall be the sole responsibility of the Contractor.
  
- D. Contractor shall give Owner and Engineer at least 48 hours notice prior to a partial blockage or closure of any street or public right of way. When working in the right of way of county roads, Contractor shall be responsible for acquiring the necessary permits for working in a right-of-way.

- E. Traffic control devices shall be inspected daily. Warning lights should be checked for proper operation and cleaned as required. All broken or ineffective traffic control devices shall be replaced immediately.
- F. Contractor shall designate an individual and one (1) alternate to have responsible charge of proper installation and maintenance of the traffic control devices. These individuals shall be available on a 24-hour on call basis.

#### 1.04 HAUL ROUTES

- A. The Contractor shall take whatever steps are necessary to ensure that no overloading is done, and road restrictions are followed by all suppliers and Sub-contractors. This will ensure that no city, county, state or other restrictions are violated. It shall be the responsibility of the Contractor to familiarize himself with all local regulations before starting construction. Any road damaged by the Contractor shall be repaired to the original condition at the Contractor's expense, to the satisfaction of the Engineer.

#### 1.05 REMOVAL OF ACCESS FACILITIES

- A. Remove temporary facilities and materials, prior to Final Application for Payment inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

### **PART 2 PRODUCTS**

NOT USED

### **PART 3 EXECUTION**

NOT USED

**END OF SECTION**

**SECTION 01 60 00**  
**MATERIAL AND EQUIPMENT**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Products.
  - 2. Transportation and Handling.
  - 3. Storage and Protection.
  - 4. Product Options.
  - 5. Substitutions.
  
- B. Related Sections include, but are not limited to:
  - 1. Section 00 21 13 – C200 Instruction to Bidders.
  - 2. Section 00 70 00 – C700 General Conditions.
  - 3. Section 01 33 00 – Submittals.
  - 4. Section 01 45 00 – Quality Control.

1.02 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying, and erection of the Work. Products may also include existing materials or components designated for re-use.
  
- B. All products that may come into contact with water intended for use in a public water system shall meet American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standards 60 and 61, as appropriate. A product will be considered as meeting these standards if so certified by NSF, the Underwriters Laboratories, or other organization accredited by ANSI to test and certify each product.
  
- C. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
  
- D. Provide interchangeable components of the same manufacturer for components being replaced.

1.03 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturers' instructions.
  
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
  
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

#### 1.04 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions. Owner shall provide limited storage space. Contractor is responsible for locating and obtaining permission for additional space required.
- B. Store with seals and labels intact and legible.
- C. Store sensitive Products in weather tight, climate controlled, enclosures in an environment favorable to Product.
- D. For exterior storage of fabricated Products, place on sloped supports above ground.
- E. Provide bonded off-Site storage and protection when Site does not permit local storage or protection.
- F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
- G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

#### 1.05 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with an option for an "Approved Equivalent" Manufacturer: Submit a request for the "approved equivalent" in accordance with the following article.

#### 1.06 SUBSTITUTIONS

- A. "Approved Equivalent" products will be considered only if written request is made at least 15 days prior to bid opening.
- B. Substitutions will be considered only when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.



- D. A request constitutes a representation that the Bidder/Contractor:
1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
  2. Will provide the same warranty for the Substitution as for the specified Product.
  3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  4. Waives claims for additional costs or time extension which may subsequently become apparent.
  5. Will reimburse Owner and Engineer for review or redesign services and associated with re-approval by authorities.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
1. Submit three copies of request for consideration. Limit each request to one proposed Substitution.
  2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
  3. The Engineer will notify Contractor in writing of decision to accept or reject request.
  4. Accepted substitutions will be listed by addendum.

## **PART 2 PRODUCTS**

### 2.01 TOOLS

- A. For any equipment or equipment components furnished, requiring special tools, the Contractor shall supply the Owner with such tools to allow for the maintenance and removal/replacement of equipment components.

## **PART 3 EXECUTION**

### 3.01 INSTALLATION

- A. Install all equipment in full compliance with the manufacturers' recommendations.

**END OF SECTION**

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**SECTION 01 77 00**  
**CONTRACT CLOSEOUT**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Closeout Procedures.
  - 2. Final Cleaning.
  - 3. Adjusting.
  - 4. Project Record Documents.
  - 5. Spare Parts and Maintenance Products.
  - 6. Warranties and Bonds.
  - 7. Maintenance Service.
  
- B. Related Sections include; but are not limited to:
  - 1. Section 01 25 00 – Measurement and Payment.
  - 2. Section 01 33 00 – Submittals.

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
  
- B. Provide submittals to Engineer that are required by governing or other authorities.
  
- C. Submit Final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
  
- D. Owner will occupy all portions of the Project.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final Work assessment.
  
- B. Clean Site; sweep paved areas and rake clean landscaped surfaces affected by Work.
  
- C. Remove waste and surplus materials, rubbish, and construction facilities from the Site.

1.04 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

## 1.05 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents and record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed Shop Drawings, Product Data, and Samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling current and future reference by Owner and Engineer.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
  - 1. Manufacturer's name and Product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 2. Field changes of dimension and detail.
  - 3. Details not on original Contract drawings.
- G. Submit documents to Engineer with claim for Final Application for Payment.

## 1.06 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Provide spare parts, maintenance, and extra Products in quantities specified in individual specification Sections.
- B. Deliver to Site and place in location as directed by Owner; obtain receipt prior to final payment.

## 1.07 WARRANTIES AND BONDS

- A. Provide duplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in D size three ring binders with durable plastic cover.

- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.08 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components during the warranty period.
- B. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.
- C. Maintenance service shall not be assigned or transferred to any agent or Subcontractor without prior written consent of the Owner.

**PART 2 PRODUCTS**

- A. Not Used.

**PART 3 EXECUTION**

- A. Not Used.

**END OF SECTION**

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# **DIVISION 03 CONCRETE**





**SECTION 03 20 00**  
**CONCRETE REINFORCING**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Reinforcing steel for cast-in-place concrete.
- B. Supports and accessories for steel reinforcement.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

- A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
- B. ACI MNL-66 - ACI Detailing Manual; 2020.
- C. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.
- D. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement; 2022a.
- E. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2021.
- F. AWS D1.4/D1.4M - Structural Welding Code - Steel Reinforcing Bars; 2018, with Amendment (2020).
- G. CRSI (DA4) - Manual of Standard Practice; 2023.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements and 01 33 00 - Submittals, for submittal procedures.
- B. Shop Drawings: Comply with requirements of ACI MNL-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- C. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

1.05 QUALITY ASSURANCE

- A. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.4/D1.4M and no more than 12 months before start of scheduled welding work.

## **PART 2 PRODUCTS**

### 2.01 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).
  - 1. Plain billet-steel bars.
  - 2. Unfinished.
- B. Reinforcing Steel: ASTM A706/A706M, deformed low-alloy steel bars.
  - 1. Unfinished.
  - 2. Use for all field-welded rebar.
- C. Reinforcement Accessories:
  - 1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
  - 2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
  - 3. Provide stainless steel or plastic or other non-corrosive material components after approval by Eng for placement within 1-1/2 inches (38 mm) of weathering surfaces.

### 2.02 RE-BAR SPLICING:

- A. Coupler Systems: Mechanical devices for splicing reinforcing bars.
  - 1. Comply with ACI CODE-318 steel reinforcing design strength requirements for splices in tension and compression.
- B. Grout: Cementitious, non-metallic, non-shrink grout for use with manufacturer's grout sleeve reinforcing bar coupler system.

### 2.03 FABRICATION

- A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.
- B. Welding of reinforcement is permitted only with the specific approval of Engineer. Perform welding in accordance with AWS D1.4/D1.4M.
- C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

## **PART 3 EXECUTION**

### 3.01 PLACEMENT

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Accommodate placement of formed openings.

**END OF SECTION**

**SECTION 03 30 00**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Joint devices associated with concrete work.
- C. Concrete curing.

1.02 RELATED REQUIREMENTS

- A. Section 03 20 00 - Concrete Reinforcing.
- B. Section 07 92 00 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

- A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
- B. ACI PRC-211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.
- C. ACI PRC-304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).
- D. ACI PRC-305 - Guide to Hot Weather Concreting; 2020.
- E. ACI PRC-306 - Guide to Cold Weather Concreting; 2016.
- F. ACI PRC-308 - Guide to External Curing of Concrete; 2016.
- G. ACI PRC-347 - Guide to Formwork for Concrete; 2014 (Reapproved 2021).
- H. ACI SPEC-117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).
- I. ACI SPEC-301 - Specifications for Concrete Construction; 2020.
- J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.
- K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.
- L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2024.
- M. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.
- N. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2023.
- O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).

- P. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.
- Q. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.
- R. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; 2017.
- S. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2020a.
- T. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2021.
- U. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2022.

#### 1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements 01 33 00 - Submittals for submittal procedures.
- B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
- C. Mix Design: Submit proposed concrete mix design.
  - 1. Indicate proposed mix design complies with requirements of ACI SPEC-301, Section 4 - Concrete Mixtures.
  - 2. Indicate proposed mix design complies with requirements of ACI CODE-318, Chapter 5 - Concrete Quality, Mixing and Placing.
  - 3. Include aggregate material tests, and blended gradation of the proposed aggregate blend.
  - 4. Mix design shall indicate predicted slump value and other plastic and fresh properties
- D. Test Reports: Submit report for each test or series of tests specified.
- E. Sustainable Design Submittal: If any fly ash, ground granulated blast furnace slag, silica fume, rice hull ash, or other waste material is used in mix designs to replace Portland cement, submit the total volume of concrete cast in place, mix design(s) used showing the quantity of portland cement replaced, reports showing successful cylinder testing, and temperature on day of pour if cold weather mix is used.
- F. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### 1.05 NOTICE OF INTENTION TO POUR

- A. Contractor shall notify the Engineer at least 48 hours before an intended cast-in-place concrete pour.

#### 1.06 QUALITY ASSURANCE

- A. Perform work of this section in accordance with ACI SPEC-301 and ACI CODE-318.
- B. Follow recommendations of ACI PRC-305 when concreting during hot weather.
- C. Follow recommendations of ACI PRC-306 when concreting during cold weather.
- D. Acquire all products for the entire project from the same source.

### **PART 2 PRODUCTS**

#### 2.01 FORMWORK

- A. Formwork Design and Construction: Comply with guidelines of ACI PRC-347 to provide formwork that will produce concrete complying with tolerances of ACI SPEC-117.
- B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
  - 1. Form Facing for Exposed Finish Concrete: Contractor's choice of materials that will provide smooth, stain-free final appearance.
  - 2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
  - 3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
  - 4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches (38 mm) of concrete surface.

#### 2.02 REINFORCEMENT MATERIALS

- A. Comply with requirements of Section 03 20 00.

#### 2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150/C150M, Type II - Moderate Portland type.  
OR
- B. Cement: ASTM C595, Type 1L Portland-Limestone
  - 1. Acquire cement for entire project from same source.
  - 2. Use Type MS as needed for sulfate resistance based on constituent material properties.
- C. Fine and Coarse Aggregates: ASTM C33/C33M.
  - 1. Acquire aggregates for entire project from same source.

- D. Fly Ash: ASTM C618, Class C or F.
- E. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

#### 2.04 ADMIXTURES

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Chemical Admixture: Contractor and concrete supplier may use any reasonable admixture blend, but all admixtures shall meet their applicable ASTM Specification.
- C. Accelerating admixtures are not allowed.
- D. Air Entrainment Admixture: ASTM C260/C260M.

#### 2.05 BONDING AND JOINTING PRODUCTS

- A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.
- B. Epoxy Bonding System:
  - 1. Complying with ASTM C881/C881M and of Type required for specific application.
- C. Slab Isolation Joint Filler: 1/2-inch (13 mm) thick, height equal to slab thickness, with removable top section forming 1/2-inch (13 mm) deep sealant pocket after removal.

#### 2.06 CURING MATERIALS

- A. Evaporation Reducer: Liquid thin-film-forming compound that reduces rapid moisture loss caused by high temperature, low humidity, and high winds; intended for application immediately after concrete placement.
- B. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
- C. Curing Compound, Non-Dissipating: Liquid, membrane-forming, clear, nonyellowing acrylic; complying with ASTM C309.

#### 2.07 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI PRC-211.1 recommendations.
  - 1. Replace as much Portland cement as possible with fly ash as is consistent with ACI recommendations, not to exceed 25%.
- B. Admixtures: Add acceptable admixtures as recommended in ACI PRC-211.1 and at rates recommended or required by manufacturer.
- C. Normal Weight Concrete:

1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch (27.6 MPa).
2. Fly Ash Content: Maximum 25 percent of cementitious materials by weight.
3. Water-Cement Ratio: Maximum .42\_\_ percent by weight.
4. Total Air Content: 5-7\_\_ percent, determined in accordance with ASTM C173/C173M.
5. Maximum Slump: 3 inches (75 mm).
6. Maximum Aggregate Size: 5/8 inch (16 mm).

## 2.08 MIXING

- A. On Project Site: Mix in drum type batch mixer, complying with ASTM C685/C685M. Mix each batch not less than 1-1/2 minutes and not more than 5 minutes.
- B. Transit Mixers: Comply with ASTM C94/C94M.
- C. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

## **PART 3 EXECUTION**

### 3.01 EXAMINATION

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

### 3.02 PREPARATION

- A. Formwork: Comply with requirements of ACI SPEC-301. Design and fabricate forms to support all applied loads until concrete is cured and for easy removal without damage to concrete.
- B. Verify that forms are clean and free of rust, debris, dirt, and grease before applying release agent.
- C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.
- D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.
  1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
  2. Use latex bonding agent only for non-load-bearing applications.
- E. In locations where new concrete is doveled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

### 3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

- A. Comply with requirements of ACI SPEC-301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
- B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

### 3.04 PLACING CONCRETE

- A. Place concrete in accordance with ACI PRC-304.
- B. Notify Engineer not less than 48 hours prior to commencement of placement operations.
- C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.
- F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

### 3.05 SLAB JOINTING

- A. Locate joints as indicated on drawings.
- B. Anchor joint fillers and devices to prevent movement during concrete placement.
- C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
- D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch (5 mm) thick blade and cut at least 1 inch (25 mm) deep but not less than one quarter (1/4) the depth of the slab.

### 3.06 CONCRETE FINISHING

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch (6 mm) or more in height.



- C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch (6 mm) or more in height. Provide finish as follows:

### 3.07 CURING AND PROTECTION

- A. Comply with requirements of ACI PRC-308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
  - 1. Normal concrete: Not less than seven days, or until 70% of the design compressive strength has been verified by test results.
- C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

### 3.08 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 45 00 - Quality Control.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure compliance with specified requirements.
- E. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain at least one test sample for every day of placement and a test samples for every 50 cubic yards (23 cu m) or less of each class of concrete placed.
- F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. Obtain (1) test sample for each day of each type of concrete, and additional samples for each 50 cy. yd. placed each day. Perform the following tests on each sample:
  - 1. Slump of plastic concrete
  - 2. Air content of plastic concrete
  - 3. Unit weight of plastic concrete
  - 4. Concrete temperature of plastic concrete
  - 5. Cast (4) compressive strength test cylinders for laboratory testing
  - 6. Cast (2) companion field cured strength test cylinders for laboratory testing when cold-weather conditions prevail at the time of concrete placement
  - 7. Record environmental conditions at time of placement, location of placement, and other conditions pertinent to the placement, curing, and

- completion of the concrete
- 8. Compressive strength test at 7 days and 28 days
- 9. All tests shall comply with applicable ASTM test method specifications
- 10. Submit verbal reports of any non-compliant test results immediately to the contractor and Engineer
- 11. Submit written report within 3 days

### 3.09 DEFECTIVE CONCRETE

- A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
- B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.
- C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.
- D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

### 3.10 PROTECTION

- A. Do not permit traffic over unprotected concrete floor surface until fully cured.

**END OF SECTION**

# **DIVISION 31 EARTHWORK**



**SECTION 31 05 13**  
**SOILS FOR EARTHWORK**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Subsoil materials.
  - 2. Topsoil materials.
- B. Related Sections include:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 - General Requirements.
  - 3. Division 31 - Earthwork.
  - 4. Division 32 - Exterior Improvements.

1.02 SUBMITTALS FOR REVIEW

- A. See Section 01 33 00 - Submittals.
- B. Samples: In accordance with Section 01 45 00 - Quality Control.

1.03 QUALITY ASSURANCE

- A. Section 01 45 00 - Quality Control: Field Samples.
- B. Material Source: Provide materials from the same source throughout the Work. Change of source requires Engineer approval.

**PART 2 PRODUCTS**

2.01 SUBSOIL MATERIALS

- A. Subsoil: Uncontaminated excavated on-site material or imported borrow material. Graded free of lumps larger than 3 inches, rocks larger than 2 inches, and debris; non-plastic and inorganic material.
  - 1. Type S1: Fine sand and gravel, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Conforming to ASTM D2487 Group Symbol GM, GC, SM, SC, SP, SW, or dual symbol groups.
  - 2. Type S2: Silt, silty-clay, inorganic clays, and silts of low to medium plasticity and a maximum liquid limit of 40. Conforming to ASTM D2487 Group Symbol CL, ML, or dual symbols thereof.
  - 3. Type S3: Plastic to highly plastic clays and clay-silt materials of medium to high plasticity Conforming to ASTM D2487 Group Symbol CH, and MH or dual symbols thereof.
  - 4. Unsuitable soils: All frozen material, vegetation, trash, rocks, and concrete and bituminous chunks having a dimension exceeding 3 inches and otherwise not meeting the specifications of soil materials.

## 2.02 TOPSOIL MATERIALS

- A. Topsoil: Uncontaminated excavated on-site material or imported borrow material; Graded free of roots, rocks larger than ½ inches, subsoil, debris, large weeds, and foreign matter.
  - 1. Type S4: Imported or Re-used; Friable loam. Acidity range (pH) of 5.5 to 6.5 containing a minimum of 4 percent and a maximum of 25 percent organic matter. Conforming to ASTM D2487 Group Symbol OL and OH.

## 2.03 SOURCE QUALITY CONTROL

- A. Section 01 45 00 - Quality Control: Testing and analysis of soil material.
- B. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698 and ASTM D6938.
- C. Testing and Analysis of Topsoil Material: Perform in accordance with ASTM D2487.
- D. Provide materials of each type from same source throughout the Work.
- E. Owner to obtain and pay for services of soil classification technician from an independent geotechnical laboratory to monitor soils installed. Contractor is responsible for scheduling and complying with geotechnical requirements.

## **PART 3 EXECUTION**

NOT USED.

**END OF SECTION**

**SECTION 31 05 16**  
**AGGREGATES FOR EARTHWORK**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Coarse and fine aggregate materials.
- B. Related Sections include, but are not limited to:
  - 1. The General Conditions, Supplementary Conditions, and General Requirements apply to work of this section.
  - 2. Division 01 - General Requirements.
  - 3. Division 31 - Earthwork.
  - 4. Division 32 - Exterior Improvements.
  - 5. Division 33 - Utilities.
  - 6.

1.02 SUBMITTALS FOR REVIEW

- A. Section 01 33 00 - Submittals: Procedures for submittals.
- B. Samples: Submit, in air-tight containers, 40 pound sample of each type of aggregate to testing laboratory. Submit Laboratory Results to Engineer.

1.03 QUALITY ASSURANCE

- A. Section 01 45 00 - Quality Control: Field Samples.
- B. Material Source: Submit name of imported material supplier(s). Provide materials from the same source throughout the Work. Change of source requires Engineer approval.

**PART 2 PRODUCTS**

2.01 AGGREGATE MATERIALS

- A. Coarse Aggregate (Concrete Mix and Type A1): Well graded crushed stone or gravel conforming to the requirements of ASTM C33, Gradation 67.
- B. Coarse Aggregate (Surface Course and Type A2): Gravel; angular crushed, or natural stone; free of shale, clay, friable material and debris; graded in accordance with North Dakota Department of Transportation referenced specifications, Section 816, Class 13 or clean crushed concrete complying with Paragraph 2.3 of Section 2070, For all aggregate surface areas.
- C. Coarse Aggregate (Base Course and Type A3): Gravel; angular crushed, or natural stone; free of shale, clay, friable material and debris; graded in accordance with North Dakota Department of Transportation referenced specifications, Section 816, Class 5.

- D. Fine Aggregate (Concrete Mix and Type A4): Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter; graded in accordance with ASTM C33.
- E. Foundation Rock: Mixture of crushed and uncrushed rock, with at least 35% of the rock fraction having 1 or more natural or manufactured fractured faces, meeting ASTM C33 1" nominal size aggregate sizes #4 through #57.

## 2.02 SOURCE QUALITY CONTROL

- A. Section 01 45 00 - Quality Control: Source testing and analysis of aggregate material.
- B. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136 and ASTM D698.
- C. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136 and ASTM D698.
- D. If tests indicate materials do not meet specified requirements, change material or material source and retest.
- E. Provide materials of each type of aggregate from the same source throughout the Work.

## **PART 3 EXECUTION**

### 3.01 STOCKPILING

- A. Stockpile materials in accordance with Section 31 14 13.

### 3.02 STOCKPILE CLEANUP

- A. Cleanup stockpiles in accordance with Section 31 14 13.

## **END OF SECTION**



**SECTION 31 10 00**  
**SITWORK DEMOLITION AND REMOVAL**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
1. The removal and satisfactory disposal of pavement materials including concrete pavement, asphalt pavement, concrete driveways, curb and gutter, aggregate base and surface, and geotextile fabric.
  2. The removal and disposal of designated utility structures, pipes, and related appurtenances.
  3. Removal of miscellaneous items described on the drawings such as ramps, concrete sign bases, rock mulch & edging, sign posts, electrical pedestals & related items, and other incidental site items.
  4. The salvaging of designated materials when so indicated.
- B. Related Sections include but are not limited to:
1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  2. Division 01 – General Requirement Specification Sections
  3. Division 31 – Earthwork Specification Sections
  4. Division 32 – Exterior Improvements Specification Sections
  5. Section 31 11 00 – Clearing and Grubbing.

1.02 REFERENCE STANDARDS

- A. Reference Standards include but are not limited to:
1. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, latest edition.
    - a. Any references to NDDOT Specifications will not include any references to measurement or payment procedures unless otherwise noted in this specification.

1.03 PROTECTION

- A. Confine Work and stockpiling to within designated areas as approved by Engineer. Leave undisturbed all pavement and utility appurtenances not indicated for removal or renovation.
- B. Maintain proper positive drainage during construction operations and through completion.

## **PART 2 PRODUCTS**

2.01 NOT USED.

## **PART 3 EXECUTION**

### 3.01 PREPARATION

- A. Inspect and record existing conditions on site and at adjacent areas prior to starting construction.
- B. Become familiar with required lines of removal and saw cutting.
- C. Identify underground utilities.
- D. Provide, erect, and maintain adequate barriers and warning lights.
- E. Protect and maintain survey monuments or any construction staking from disturbance during pavement removal.
- F. Keep streets, sidewalks, alleys, and driveways in usable condition; avoid property owner inconvenience insofar as practicable; do not trespass on private property.
- G. Verify traffic control in place prior to commencement of pavement removal.
- H. Commencement of this Section's Work means acceptance of existing conditions.

### 3.02 REMOVAL

- A. Saw cutting is required on all concrete and asphalt pavements, sidewalk, and curb and gutter. Pavement removal beyond the limits established in the notes on the Drawings shall be replaced at the Contractor's expense.
- B. Saw cut vertically full depth to obtain a clean break. Remove on straight lines approximately parallel or perpendicular to centerline or pavement.
- C. Remove curb and gutter where indicated on Drawings, or as necessary to accomplish Contractor's work. All additional curb and gutter removal must be approved by Engineer and Owner. Curb and gutter removal not specified and without proper approval shall be replaced at the Contractor's expense.
- D. Disturbances, breakage, or damage to areas not designated for removal shall be restored at Contractor's expense prior to final payment.
- E. Pavement removed beyond the limits established shall be replaced to the same specifications as the adjacent removal at Contractor's expense.
- F. Remove abandoned utility structures, pipes, and related appurtenances where indicated on the drawings or encountered by new construction. Fill trenches with Type S1 or S2 soil material, as specified in Section 31 23 24, and compact to a minimum of 95% of maximum dry density determined by ASTM D698 (Standard Proctor).

- G. Where abandoned pipes are to remain in place, plug all exposed ends with concrete.
- H. Where abandoned structures are to remain in place, plug all pipe penetrations with concrete and fill structure with Class 3 material, as specified in Section 31 23 26.
- I. Remove and dispose of miscellaneous items as described in plan Demolition and Removal Notes. Salvage and deliver items to Owner storage yard when so indicated.

### 3.03 TOLERANCES

- A. Saw cut full depth to achieve a clean break. If required line of removal falls within 2 feet of an existing joint, adjust line of removal to be the existing joint.

### 3.04 DISPOSAL

- A. Remove broken pavement, pipes, utility structures, and appurtenances, and dispose of materials off site in Contractor furnished disposal area in a manner that is acceptable to local authorities and regulatory agencies.

**END OF SECTION**

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**SECTION 31 11 00**  
**CLEARING AND GRUBBING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Protection of features not designated for removal.
  - 2. Site removals.
  - 3. Disposal of waste materials.
- B. Related Sections include:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 - General Requirements.
  - 3. Division 31 - Earthwork.

1.02 SUBMITTALS

- A. Prior to site clearing, obtain sufficiently detailed photographs or videotape of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

1.03 REGULATORY REQUIREMENTS

- A. Obtain and follow all necessary permits and regulations for removal of trees and vegetation.
- B. Conform to applicable codes and regulations for proper disposal of debris.
- C. Conform to applicable codes for worker safety.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Topsoil: Refer to Section 31 14 13.
- B. All excess or unsuitable soil materials shall be hauled and disposed of off-site in Contractor furnished disposal area. Materials such as trees, vegetation, debris, trash, and all other material identified by the Owner as unsuitable shall become the Contractor's property and shall be removed from the site to a disposal area furnished by the Contractor that is acceptable to local authorities and regulatory agencies.

**PART 3 EXECUTION**

3.01 PREPARATION

- A. Verify that existing plant life designated to remain is tagged or identified.
- B. Beginning work of this Section means acceptance of existing conditions.

- C. Identify and furnish an area for storing or placing removed material prior to the commencement of Work in this Section.

### 3.02 PROTECTION

- A. Locate, identify, and protect utilities that remain from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench marks, survey control points, and existing structures from damage.
- D. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared subgrades and from flooding site and surrounding area.
- E. Contractor shall repair or replace, to original condition or better, existing structures and improvements, flora, and landscaping damaged or injured during construction operations. Contractor shall understand the sensitive nature of working on or near developed property and shall endeavor to limit injury or damage both inside the limits of construction and outside the limits of construction.
- F. Protect existing trees and other vegetation indicated to remain from unnecessary cutting, breaking, skinning of roots, skinning and bruising of bark, smothering of trees, by stockpiling construction materials or excavated materials within the drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.
- G. Protect wetlands, rivers, streams, and other waters of the state from all construction activities and contamination by erosion and runoff.
- H. Protect areas that have been finish graded from subsequent construction operations, traffic, and erosion. Remove, provide new, and compact as required, material contaminated by erosion and runoff

### 3.03 CLEARING

- A. Clear areas as indicated on the plans and as required for access to site and execution of Work.
- B. Contractor shall be responsible for all permanent tree and shrub removal. Removal only the trees and shrubs indicated in the Drawings. Remove stumps, main root ball, and root systems.

### 3.04 GRUBBING

- A. Depressions resulting from grubbing operations shall be backfilled in accordance with other sections in Division 31.

### 3.05 DISPOSAL OF WASTE MATERIALS

- A. Remove all clearing and grubbing debris from the site

- B. Adhere to all permits and regulations. Burning shall not be allowed on Owner's property or project site.

**END OF SECTION**

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**SECTION 31 14 13**  
**SOIL STRIPPING AND STOCKPILING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Protection of features not designated for removal.
  - 2. Topsoil Removal.
  - 3. Stockpiling of Materials.
  - 4. Stockpile Cleanup.
- B. Related Sections include, but are not limited to:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 – General Requirement Specification Sections.
  - 3. Division 31 – Earthwork Specification Sections.

1.02 DESCRIPTION

- A. Limits of construction are shown on the Drawings. Excavation shall not be allowed outside of the limits of construction as shown on the Drawings.
- B. Materials may be temporarily stockpiled on the site within the limits of construction or where shown on the Drawings.
- C. Protect benchmarks and existing structures that are to remain from damage or displacement.

1.03 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as indicated.

1.04 DEFINITIONS

- A. Soil Testing Laboratory: Refers to a professional soils engineering firm with soil sampling and testing services that is independent from the Contractor.
- B. Structures: Existing and new construction, including slabs, manholes, and other structural elements.

1.05 SITE CONDITIONS

- A. Contractor shall determine to Contractor's own satisfaction the nature and location of subsurface obstacles and the nature of soil and water conditions which will be encountered during the work.
- B. Contractor may perform additional test borings or other exploratory operations at Contractor's own expense. Contractor shall make arrangements for any additional soils investigation with Owner.

- C. No claim for additional payment will be accepted due to the nature of subsurface conditions in which the work is to be performed.

## **PART 2 PRODUCTS**

2.01 NOT USED.

## **PART 3 EXECUTION**

### 3.01 INSPECTION

- A. Contractor shall verify which native materials are suitable for reuse at the site. Provide testing data as required and keep materials separated.
- B. Notify Engineer of any unsuitable materials.

### 3.02 PROTECTION OF FEATURES NOT DESIGNATED FOR REMOVAL

- A. Protect all existing structures, trees, plantings, turf, and other facilities which are not scheduled for removal.

### 3.03 TOPSOIL REMOVAL

- A. All topsoil shall be stripped to full depth (12 inches minimum) and stockpiled separately in area of site designated by Owner or Engineer. Topsoil will be available for replacement on top of finished grading and all disturbed areas not covered by structures or pavement.
- B. Separate all debris, large roots, and rocks greater than  $\frac{3}{4}$  inch from the topsoil and remove from the site in accordance with all applicable Federal, State, and Local regulations to Contractor furnished site.
- C. Where trees are to be left standing, stop topsoil stripping a sufficient distance (at least the drip line) from a tree to prevent damage to main root system.
- D. Do not excavate wet topsoil. Wet topsoil is defined as wetter than the plastic limit.
- E. Remove excess topsoil not intended for reuse from site to a new location acceptable to Owner.

### 3.04 STOCKPILING OF MATERIALS

- A. Contractor may temporarily stockpile acceptable materials including topsoil, excess excavated, and delivered materials within the limits of construction. Contractor shall obtain approval from Engineer before stockpiling excess materials.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

- E. Apply appropriate erosion control measures to stockpile areas.
- F. Contractor shall remove all excess stockpiles from the site prior to substantial completion of the project unless otherwise approved by the Engineer.

3.05 STOCKPILE CLEANUP

- A. Remove stockpile; leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.
- B. If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.
- C. Restore stockpile area to preconstruction conditions.

**END OF SECTION**

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**SECTION 31 22 00**  
**GRADING**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Rough grading.
- B. Fine grading.

1.02 RELATED REQUIREMENTS

- A. Section 31 11 00 - Clearing and Grubbing.
- B. Section 31 23 16 - Excavation.
- C. Section 31 23 23.23 - Backfilling.
- D. Section 32 91 19 - Landscape Grading.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1910.266 - Logging Operations; Current Edition.

1.04 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.05 FIELD CONDITIONS

- A. Ambient Conditions: Terminate work during hazardous environmental conditions in accordance with 29 CFR 1910.266.
- B. Existing Conditions: See site and utility survey, hazardous material survey, existing conditions survey, and site drawing.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Subsoil Fill: Type S1 or S2 as specified in Section 31 23 24.
- B. Aggregate Fills: As specified in Section 31 23 26.
- C. Other Fill Materials: See Section 31 23 23.23.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify survey bench mark and intended elevations for grading areas are as indicated.
- B. Verify the absence of standing or ponding water.

### 3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Provide temporary means and methods to remove standing or ponding water from areas prior to grading.
- F. Protect site features to remain, including but not limited to bench marks, survey control points, and fences.
- G. Remove topsoil in accordance with Section 31 11 00.
- H. Excavate materials in accordance with Section 31 23 16.
- I. Fill and backfill in accordance with Section 31 23 23.23.

### 3.03 ROUGH GRADING

- A. Excavate and fill subgrade material to elevations indicated on plans.
- B. Uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finish surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown or between such points and existing grades.
- C. Rough grade areas adjacent to structure lines to drain away from structures and to prevent ponding or increase in soil lateral pressure on the structure.
- D. Remove and replace unsuitable materials as specified fill.

### 3.04 FINE GRADING

- A. Scrape and spread subgrade material uniformly smooth and without disruptions as indicated on drawings.
- B. Contractor shall provide the degree of finish grading that will be normally obtainable through the use of suitable equipment operated under favorable conditions and by an experienced operator. Deviations from the required tolerance shall be corrected by the Contractor at no additional cost to the Owner.
- C. See Section 31 23 23.23 for final compaction.

### 3.05 TOLERANCES

- A. Top Surface: Plus or minus 1/2 inch (13 mm).

### 3.06 CLEANING

- A. See Section 01 77 00 - Contract Closeout for additional requirements.

- B. Remove unused stockpiled subsoil. Grade stockpile area to prevent standing water.
- C. Leave site clean and raked, ready to receive work.

**END OF SECTION**

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**SECTION 31 23 13**  
**SUBGRADE PREPARATION**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Areas requiring subgrade preparation.
  - 2. Inspection of subgrade.
  - 3. Subgrade compaction requirements.
- B. Related Sections may include but are not limited to:
  - 1. Drawings, General Conditions, Supplementary Conditions, and General Requirements apply to work of this section.
  - 2. Division 01 – General Requirements Specification Sections.
  - 3. Division 31 – Earthwork Specification Sections.

1.02 REFERENCE STANDARDS

- A. Reference standards include but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT), Standard Specifications for Road and Bridge Construction, latest edition.
    - a. Any measurement and payment provisions of reference standards do not apply to this project unless explicitly stated so within these specifications.

1.03 QUALITY ASSURANCE REQUIREMENTS

- A. See Section 01 45 00 for material quality testing requirements.

**PART 2 PRODUCTS**

2.01 SUITABLE SOIL MATERIALS

- A. On-Site excavated material or imported material meeting subsoil classification S1 or S2, as defined in Section 31 23 24, free of rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

2.02 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to approval of the Engineer.

**PART 3 EXECUTION**

3.01 GENERAL

- A. Subgrade preparation is required on all areas that will receive structures, concrete slabs or pavement, bituminous pavement, aggregate base course,

and/or aggregate surface course, and graveled areas. This shall be incidental to the Work.

### 3.02 SUBGRADE PREPARATION

- A. The Contractor shall compact and shape the subgrade for its full width as may be necessary to produce, at the time the base course is placed, the required density in the upper 12-inches of the base and the required grade and cross-section.
- B. The subgrade shall be prepared by scarifying the upper 12-inches of subgrade soil and compacting according to Section 31 23 23.23. Subgrade preparation shall extend deeper than 12-inches if the Engineer believes that additional subgrade preparation is necessary to support construction.
- C. If areas are encountered that cannot be compacted, subexcavate unstable materials and replace with materials that can be compacted.
- D. Any irregularities or depressions that develop during rolling shall be corrected by loosening the material at these places and adding, removing, or replacing material until the surface is smooth and uniform.
- E. Contractor shall be responsible for drying the subgrade soil or applying water as may be necessary to obtain the required density. Contractor shall also be responsible for grading the Work area and providing drainage so that accumulating water will drain away from the subgrade.
- F. The finished subgrade surface shall be smooth and uniform and shall not rut, shove, flex, or displace when any construction equipment is placed on it.
- G. The required grade and cross-section for subgrades shall consist of a smooth subgrade surface that conforms to the prescribed elevations for the particular subgrade being prepared, prior to constructing an additional course thereon. The required grade and cross-section for rough graded surfaces shall consist of a smooth graded surface that conforms to the prescribed elevations for that particular rough grade being prepared. The prescribed elevation for any point on the subgrade or rough graded surfaces shall be as determined from the grades staked by the Engineer.
- H. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations, vehicular traffic, or weather conditions.
- I. Surface or base course shall not be placed on subgrades until the subgrade has been tested and Contractor has proven that the requirements specified herein have been met. Upon completion of a successful test, Contractor shall maintain the subgrade and repair any damage prior to placing subsequent materials.
- J. Subgrade preparation shall apply to all paved and graveled areas, including roads, driveways, parking areas, sidewalks, and ramps

### 3.03 COMPACTION

- A. Conform to NDDOT Road and Bridge Construction specifications, latest edition or as modified herein:
  - 1. Compact subgrade to not less than 98 percent of maximum density under pavement section.
  - 2. Existing aggregate base shall be compacted per Section 32 11 23.
  - 3. For the Specified Density Method, the Engineer will sample and test the soils to determine the Maximum Density and Optimum Moisture.
  - 4. Density and moisture tests will be taken on the compacted subgrade at the location and testing rates designated by the Engineer. Nuclear density testing shall be considered an approved method.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest at no cost to Owner.
- C. Frequency of Tests:
  - 1. One per driving lane per 200 feet of road length or as directed by the Engineer.
- D. Proof Rolling: In addition to compaction testing, Proof Rolling will be performed to confirm adequate compaction.
  - 1.
  - 2. The Proof Rolling will utilize a fully loaded tandem axle dump truck, or an Engineer approved vehicle, rolling across the driving area.
  - 3. If the vehicle does not cause obvious informity and instability, the compaction can be approved as adequate.
  - 4. The Proof Rolling must be performed in the presence of the Engineer, Owner and Contractor.
  - 5. Proof Rolling will be performed on all driving areas prior to placement of aggregate base.

### 3.04 FINISH OPERATIONS

- A. Surface or base course shall not be placed on subgrades until the subgrade has been tested and Contractor has proven that the requirements specified herein have been met. Upon completion of a successful test, Contractor shall maintain the subgrade and repair any damage prior to placing subsequent materials.
- B. Testing requirements for subgrade preparation shall be as follows:
  - 1. Shall conform to requirements of Section 01 45 00 - Quality Control.

### 3.05 TOLERANCES

- A. Finish subgrade or rough graded surfaces shall not deviate by more than 1 inch from the required section and grade.

**END OF SECTION**

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**SECTION 31 23 16**  
**EXCAVATION**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Excavating for utilities..
- B. Excavating for site structures including manholes.
- C. Site excavation
- D. Trenching for utilities outside the building to utility main connections.

1.02 RELATED REQUIREMENTS

- A. Section 31 11 00 - Clearing and Grubbing: Vegetation and existing debris removal; topsoil removal.
- B. Section 31 22 00 - Grading: Grading.
- C. Section 31 23 16.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.
- D. Section 31 23 16.26 - Rock Removal: Removal of rock during excavating.
- E. Section 31 23 23.23 - Backfilling: Fill materials, backfilling, and compacting.
- F. Section 32 91 19 - Landscape Grading.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

**PART 2 PRODUCTS**

NOT USED.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the work are as indicated.
- B. Survey existing adjacent structures and improvements and establish exact elevations at fixed points to act as benchmarks.
  - 1. Resurvey benchmarks during installation of excavation support and protection systems and notify Owner if any changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

3.02 PREPARATION

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

- B. See Section 31 11 00 for clearing, grubbing, and topsoil removal.
- C. Locate, identify, and protect utilities that remain and protect from damage.
- D. Notify utility company to remove and relocate utilities.
- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. Protect plants, lawns, rock outcroppings, and other features to remain.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Engineer.

### 3.03 EXCAVATING

- A. Excavate to accommodate new structures and construction operations.
  - 1. Excavate to the specified elevations.
  - 2. Excavate to the length and width required to safely install, adjust, and remove any forms, bracing, or supports necessary for the installation of the work.
  - 3. Cut utility trenches wide enough to allow inspection of installed utilities.
  - 4. Hand trim excavations. Remove loose matter.
- B. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Remove lumped subsoil, boulders, and rock up to 1/3 cubic yard (0.25 cu m) measured by volume.
- E. Provide temporary means and methods, as required, to remove all water from excavations until directed by Engineer. Remove and replace soils deemed suitable by classification and which are excessively moist due to lack of dewatering or surface water control.

### 3.04 SUBGRADE PREPARATION

- A. See Section 31 23 23.23 for subgrade preparation at general excavations.
- B. See Section 31 23 16.13 for subgrade preparation at utility trenches.

### 3.05 FILLING AND BACKFILLING

- A. Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation.
- B. See Section 31 23 23.23 for fill, backfill, and compaction requirements at general excavations.
- C. See Section 31 23 16.13 for fill, backfill, and compaction requirements at utility trenches.

- D. See Section 31 22 00 for rough and fine grading.
- E. See Section 32 91 19 for topsoil placement and finish grading.

### 3.06 REPAIR

- A. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; see Section 31 23 23.23.

### 3.07 FIELD QUALITY CONTROL

- A. See Section 01 45 00 - Quality Control, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces by Engineer before placement of foundations.

### 3.08 CLEANING

- A. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 22 00.
- B. Remove excavated material that is unsuitable for re-use from site.
- C. Remove excess excavated material from site.

### 3.09 PROTECTION

- A. Divert surface flow from rains or water discharges from the excavation.
- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- E. Keep excavations free of standing water and completely free of water during concrete placement.

**END OF SECTION**

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**SECTION 31 23 16.13**  
**TRENCHING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Excavating trenches for utilities.
  - 2. Compacted bedding and fill of utilities to subgrade elevations.
  - 3. Backfilling and compaction.
- B. Related Sections include but are not limited to:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 - General Requirements Specification Sections.
  - 3. Division 31 - Earthwork Specification Sections.
  - 4. Division 32 - Exterior Improvements Specification Sections.

1.02 REFERENCE STANDARDS

- A. Reference Standards include but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT), Standard Specifications for Road and Bridge Construction, latest edition.
    - a. Any reference to NDDOT specifications shall not include references to measurement and/or payment procedures unless otherwise specified.
  - 2. ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
  - 3. ASTM D698- Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12-inch Drop.
  - 4. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 5. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate in place by Nuclear Methods (Shallow Depth).

1.03 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable, excluding manholes.

1.04 FIELD MEASUREMENTS

- A. Verify that survey benchmark, survey control point, and intended elevations for the Work are as shown on Drawings.

1.05 COORDINATION

- A. If conflicts with existing utilities are discovered, immediately contact the Engineer.

1.06 PROTECTION

- A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

- B. Underpin adjacent structures that may be damaged by excavation, including buildings, service utilities, pipes, and trees, which are to remain.
- C. Notify Engineer of unexpected subsurface conditions and discontinue work in affected area until instructed to resume work. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.
- D. Limit the length of open trench as noted on the Drawings and provide temporary safety fence around open excavations to prevent unauthorized access.
- E. Grade excavation top perimeter to prevent surface water run-on into excavation.

## **PART 2 PRODUCTS**

### 2.01 FILL MATERIALS

- A. Subsoil Fill: As specified in Section 31 23 24.
- B. Aggregate Fill: As specified in Section 31 23 26.

### 2.02 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

## **PART 3 EXECUTION**

### 3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Locate, identify, maintain, and protect utilities that remain from damage.
- C. Notify utility company to locate utilities.
- D. Protect plant life, lawns, and other features remaining as a portion of final landscaping.
- E. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- F. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type A1 and compact to density equal to or greater than requirements for subsequent backfill material.

### 3.02 EXCAVATING

- A. Excavate topsoil in accordance with Section 31 11 00.
- B. Excavate subsoil required for removal of utilities.
  - 1. Limit length of open trench to 150 lineal feet at any one time.
  - 2. Prevent inflow of surface water into trench.

3. Dewater excavation, as required, to prevent accumulation of groundwater during pipe installation and backfilling.
- C. Excavate subsoil required for removal of utilities to required depth and alignment. Trenches shall be excavated to depths needed to completely remove the utility piping.
- D. Trench width may vary with and depend upon the depth of the trench, the number of pipelines being installed in close proximity to each other, existing utilities in close proximity to the trench, and the nature of the excavated material encountered. Cut trenches sufficiently wide to enable pipe or utility installation, allow inspection, and allow proper backfilling. Trench width shall be determined by the Contractor and based on the Contractor's best practices and selected method for trenching the area to adequately accommodate the installation of each of the pipelines proposed in the project. Excavation and the associated surface restoration beyond the construction limits of the project will be the sole responsibility of the Contractor.
- E. It shall be the Contractor's responsibility to follow OSHA standards for trench excavations and ensure that trenches are braced and drained so that workmen may work therein safely and efficiently.
- F. Remove concrete or other debris, lumped subsoil, boulders, and rock up to 1/3 cubic yard, measured by volume. Provide a clearance of at least four (4) inches on all sides of the pipe and adequate clearance for properly joining pipe sections at bell holes. Excavation below grade in rock or boulders shall be backfilled with thoroughly compacted pipe bedding material for which the Contractor will receive no extra compensation.
- G. Excavation, stockpiling, and backfilling activities for pipes shall be conducted in a manner causing the least interruption to traffic and the Work of others on the Site.
- H. Stockpile excavated material in an orderly manner, at sufficient distance from the trench to avoid overloading, to prevent slides and cave-ins. Do not obstruct sidewalks, driveways, streets or drainage ways. Excess or unsuitable material excavated from trench shall become Contractor's property and shall be removed from the site in a legal manner.
- I. Provide drainage surrounding trench continually preventing inflow of surface water into trench. Water shall not be permitted to accumulate in the trench. Dewater excavation, as required, to prevent accumulation of groundwater during pipe installation and backfilling at no cost to Owner. Discharge shall be led to natural drainage channels or storm sewers. Comply with storm water runoff control permit.
- J. Prevent displacement or loose soil from falling into excavation.
- K. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

- L. Where the bottom of the trench uncovered at subgrade is soft and unable to support backfill, further depth shall be excavated and refilled to pipe foundation grade with thoroughly compacted Type A1 aggregate per Section 31 23 26. This Work shall be considered incidental to construction.
- M. In the event of shrinkage of excavated soils, resulting in shrinkage of backfill along trenches, Contractor shall provide, haul, place, and compact suitable material at no additional cost to Owner.
- N. Hydrants under pressure, valve boxes, curb stop boxes, and other utility controls shall be left unobstructed and accessible during the construction period.
- O. Trees, fences, poles, and all other property shall be protected or removed and replaced as authorized by the Owner and any property damaged shall be satisfactorily restored by the Contractor.

### 3.03 BACKFILLING

- A. As specified in Section 31 23 23.23.

### 3.04 TOLERANCES

- A. Top surfaces specified in Sections 31 22 00 and 31 23 23.23.

### 3.05 FIELD QUALITY CONTROL

- A. See Section 01 45 00 - Quality Control.
- B. Perform compaction testing in accordance with ASTM D698 and ASTM D2922.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- D. Frequency of Tests: In accordance with Section 31 23 23.23, Backfilling.

### 3.06 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01 55 00.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.
- C. Clean pavements adjacent to trenches during construction as required or directed by Engineer.

### 3.07 SCHEDULE

- A. Storm Sewer, Sanitary Sewer, Water Main, and Subdrainage Piping:
  - 1. Pipe bedding and initial backfill as specified in Section 31 23 26, from bottom of excavation to elevation as shown on Drawings, compacted to 95 percent of ASTM D698 maximum dry density.
  - 2. Cover pipe and bedding with Type S1 or S2 soil material, in 8-inch compacted lifts, compacted to 95 percent of ASTM D698 maximum dry density to 2 feet below finished subgrade elevation.

3. Fill upper two feet of trench with Fill Type S2 clay, in 6-inch compacted lifts, compacted to 95 percent of ASTM D698 maximum dry density.

**END OF SECTION**

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**SECTION 31 23 19**  
**DEWATERING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. This section includes:
  - 1. Dewatering of trench and structure excavations for construction of pipelines, structures and related work under unwatered conditions.
- B. Related Sections may include but are not limited to:
  - 1. Drawings, General Conditions, Supplementary Conditions, and General Requirements apply to work of this section.
  - 2. Division 01 – General Requirements Specification Sections.
  - 3. Division 31 – Earthwork Specification Sections.

1.02 MEASUREMENT AND PAYMENT CONDITIONS

- A. No measurements of dewatering activities will be made.
- B. All costs associated with construction dewatering, including sampling, testing and reporting, will be considered incidental to the various items of work associated with contract items.

1.03 REFERENCE STANDARDS

- A. Reference standards include but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT), Standard Specifications for Road and Bridge Construction, latest edition.
    - a. Any reference to NDDOT specifications shall not include references to measurement and/or payment procedures unless otherwise specified.

1.04 SUBMITTALS

- A. Submit dewatering plan including proposed dewatering methods, anticipated locations and proposed methods of assuring compliance with water quality parameters of the permit.

**PART 2 PRODUCTS**

NOT USED.

**PART 3 EXECUTION**

3.01 DEWATERING

- A. The Contractor shall be responsible for evaluating soil and groundwater conditions and for furnishing and maintaining necessary and suitable dewatering devices and equipment.

- B. The Contractor shall provide for positive drainage away from the excavation or otherwise take steps to protect the excavation and backfill from becoming excessively wet prior to placing the finished surface.
- C. Should the Engineer determine that any portion of the backfill or trench has become excessively wet during excavation and/or backfill operations, the Contractor shall, at his own expense, remove the material to the satisfaction of the Engineer and furnish an approved backfill and/or bedding material meeting specifications.
- D. The Contractor shall provide and maintain at all times ample means and devices with which to remove promptly and to properly dispose of all water entering the excavation.
  - 1. The Contractor shall dispose of water in a suitable manner without damage to adjacent property or without creating a health hazard or nuisance condition and in compliance with applicable permit conditions.
- E. Dewatering may be accomplished by well points, sumping, or any other acceptable method which will ensure a dewatered trench or excavation. Any proposed dewatering method shall be subject to the approval of the Engineer. The Contractor will be permitted to allow groundwater to drain through completed sewers provided that satisfactory means are employed to keep solids out of the pipe and the water does not enter the existing sanitary sewer system or treatment works. The Contractor will be required to thoroughly clean all debris and sediment from the newly installed sewers, drains, and structures as directed by the Engineer.

**END OF SECTION**



**SECTION 31 23 23.23**  
**BACKFILLING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Site filling and backfilling.
  - 2. Fill under roadways.
  - 3. Fill for over-excavation.
  - 4. Consolidation and compaction as scheduled.
- B. Related Sections include but are not limited to:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 - General Requirement Specification Sections.
  - 3. Division 31 - Earthwork Specification Sections.
  - 4. Division 32 - Exterior Improvements Specification Sections.

1.02 REFERENCE STANDARDS

- A. Reference Standards include but are not limited to:
  - 1. ASTM D698- Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
  - 2. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 3. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.03 SUBMITTALS FOR REVIEW

- A. Section 01 33 00 - Submittals.
- B. Samples: Submit, in air-tight containers, 40 pound sample of each type of fill to testing laboratory.

1.04 QUALITY ASSURANCE

- A. Section 01 45 00 - Quality Control: Field Samples.
- B. Material Source: Submit name of imported material supplier(s). Provide materials from the same source throughout the Work. Change of source requires Engineer approval.

**PART 2 PRODUCTS**

2.01 FILL MATERIALS

- A. Subsoil and Topsoil Fills: As specified in Section 31 23 24.
- B. Aggregate Fills: As specified in Section 31 23 26.

## **PART 3 EXECUTION**

### 3.01 EXAMINATION

- A. Verify sub-drainage, dampproofing, and waterproofing has been inspected.

### 3.02 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in-place. Backfill with Type A1 fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.
- D. Dewater excavations during backfilling at no cost to Owner.

### 3.03 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over loose, porous, wet, frozen, or spongy subgrade surfaces.
- C. Aggregate Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- D. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth. In upper two feet immediately below finished subgrade elevation, compact in layers not exceeding 6 inches compacted depth,
- E. Employ a placement method that does not disturb or damage other work.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Slope grade away from structures minimum 6 inches in 10 feet, unless noted otherwise.
- H. Make gradual grade changes. Blend slope into level areas.
- I. Remove surplus backfill materials from site. Contractor to bear all costs associated with loading and hauling excess fill off-site to Contractor furnished disposal area.
- J. Leave fill material stockpile areas free of excess fill materials.

### 3.04 TOLERANCES

- A. Top Surface of Backfilling Under Structures and Roadways: Plus or minus 0.05 feet from required elevations.

- B. Top Surface of General Backfilling: Plus or minus 0.1 feet from required elevations.

### 3.05 FIELD QUALITY CONTROL

- A. See Section 01 45 00 - Quality Control.
- B. Perform compaction testing in accordance with ASTM D698 and ASTM D2922.
- C. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.
- D. Frequency of Tests: One per every 2 feet of backfill height per 1,000 square feet or site backfill. One per every 100 linear feet of trench per 2 feet backfill height for all utility trenches.

### 3.06 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01 55 00.
- B. Reshape and re-compact fills subjected to vehicular traffic.

### 3.07 SCHEDULE

- A. Fill Under Roadways, Parking Lots, and other Paved areas:
  - 1. Compact subsoil to 95 percent of ASTM D698 maximum dry density to 2 feet below finished subgrade elevation. Compact to 98 percent of ASTM D698 maximum dry density in upper two feet below finished subgrade elevation.
  - 2. Fill Type S1 or S2, to finished subgrade elevation.
- B. Fill Under Berms and Grassed Areas:
  - 1. Fill Type S1 or S2, to 6 inches below grade, compacted to 95 percent of ASTM D698 maximum density.
  - 2. Cover with 6 inches of topsoil.
- C. Fill Under Manholes:
  - 1. Fill Class 3 aggregate compacted to 95 percent of ASTM D698 maximum density.
- D. Backfill of Manholes and utility trenches:
  - 1. Fill Type S1 or S2 in 8-inch compacted lifts, compacted to 95 percent of ASTM D698 maximum density, to 2 feet below finished subgrade elevation.
  - 2. Fill Type S2 (clay), in 6-inch compacted lifts, compacted to 98 percent of ASTM D698 maximum density, in two feet immediately below subgrade elevation.

**END OF SECTION**

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**SECTION 31 23 24**  
**SOIL MATERIALS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Subsoil materials.
  - 2. Topsoil materials.
- B. Related Sections include but are not limited to:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 - General Requirement Specification Sections.
  - 3. Division 31 - Earthwork Specification Sections.
  - 4. Division 32 - Exterior Improvements Specification Sections.

1.02 REFERENCE STANDARDS

- A. Reference Standards include but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT), Standard Specifications for Road and Bridge Construction, latest edition.
    - a. Any reference to NDDOT specifications shall not include references to measurement and/or payment procedures unless otherwise specified.
  - 2. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12-inch Drop.
  - 3. ASTM D2487 - Classification of Soils for Engineering Purposes.
  - 4. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 5. ASTM D3017 - Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 6. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.03 SUBMITTALS

- A. Section 01 33 00 – Submittals.
- B. Samples: Submit in air-tight containers, 40-pound (lb.) sample of each type of fill to testing laboratory.
- C. Laboratory Results: Submit in accordance with Section 01 33 00.

1.04 QUALITY ASSURANCE

- A. Section 01 45 00 – Quality Control: Field Samples.
- B. Materials Source: Submit name of imported materials source.
- C. Provide materials from the same source throughout the Work. Change of source requires Engineer approval.

## **PART 2 PRODUCTS**

### **2.01 SUBSOIL MATERIALS**

- A. Subsoil: Excavated material; Imported borrow and select or local borrow. Graded free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
  - 1. Type S1: Imported or Re-used; Fine sand and gravel, including fine sands, sand-clay mixtures, and gravel-clay mixtures. Conforming to ASTM D2487 Group Symbol GM, GC, SM, and SC, SP, SW, or dual symbol groups. Existing (Native) soil shall be considered Type S1.
  - 2. Type S2: Imported or Re-used; Inorganic clays of low to medium plasticity conforming to ASTM D2487 Group Symbol CL or CH with liquid limit of 40 or less.
  - 3. Type S3: Unacceptable; All frozen material, organics, vegetation, trash, rocks, and concrete and bituminous pieces having a dimension exceeding 2 inches. Also, includes silts of ASTM D2487 Group Symbol ML or MH, and CH soils with liquid limit over 40.

### **2.02 TOPSOIL MATERIALS**

- A. Topsoil: Salvaged or imported material, soil texture classification of sandy loam, loam sand or loam, as defined by the USDA Natural Resources Conservation Service, and meeting the following criteria:
  - 1. Graded free of roots, rocks larger than 3/4 inch, subsoil, debris, large weeds and foreign matter.
  - 2. Acidity range (pH) of 5.5 to 7.5 containing a minimum of 3 percent and a maximum of 20 percent organic matter, and a maximum 100 ppm of sodium.
  - 3. There shall be not less than 20 percent nor more than 80 percent of material passing the 200 mesh sieve as determined by the wash test in accordance with ASTM D1140.
  - 4. Amended with nutrients, compost or sand to be an appropriate growing medium meeting the above specifications.
- B. Test results are required from an agricultural soils testing laboratory indicating the topsoil is acceptable as a planting medium for turf grasses. Such tests shall include recommendation for soil amendments needed to create a planting medium for turf grasses. Test results shall be submitted to Engineer for review and approval a minimum of 10 days prior to installation, to be furnished by the Contractor.

### **2.03 SOURCE QUALITY CONTROL**

- A. Section 01 45 00 – Quality Control: Testing and analysis of soil material.
- B. Contractor shall submit samples, obtain laboratory results, and submit for Engineer's approval.

- C. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698, ASTM D2487, and ASTM D4318.
- D. Testing and Analysis of Topsoil Material: Perform in accordance with ASTM D2487.
- E. If tests indicate materials do not meet specified requirements, change material and retest, at no cost to Owner.
- F. Provide materials of each type from the same source throughout the Work.

### **PART 3 EXECUTION**

#### **3.01 SOIL REMOVAL**

- A. Excavate subsoil and topsoil required from all areas designated for construction.
- B. Remove lumped soil, boulders, rock, and large weeds.
- C. Stockpile excavated material to be reused at location designated by Owner on project site. Remove excess or unsuitable material not being reused to off-site disposal area furnished by Contractor.

#### **3.02 STOCKPILING**

- A. Stockpile materials at location acceptable to Owner. Remove and dispose of excess or unsuitable material in off-site disposal area furnished by Contractor.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Prevent intermixing of soil types or contamination of stockpiled soils.
- E. Do not stockpile wet material. Excavated wet material must be processed to obtain optimum moisture content prior to stockpiling.
- F. Limit height of stockpile to 8 feet. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- G. Protect stockpiled materials from inclement weather. If materials are left without protection and become unusable due to moisture content, all costs associated with material replacement or farming will be the responsibility of the Contractor.

#### **3.03 PREPPING THE GROUND SURFACE FOR TOPSOIL**

- A. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by disks or spike-tooth harrows, or by other means approved by the Engineer, to a minimum of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil.
- B. Unless otherwise approved by the Engineer, the surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in diameter.

- C. All litter or other material which may be detrimental to proper bonding shall be removed.

#### 3.04 PLACING TOPSOIL

- A. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 4 inches after compaction unless otherwise shown on the plans or stated in the special provisions.
- B. Spreading shall not be done when the ground is frozen, excessively wet, or otherwise in a condition detrimental to the work.
- C. After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or other effective means.
- D. All roots, litter, foreign matter, and stones or rocks 2 inches or more in diameter, unless otherwise approved by Engineer, shall be removed and disposed of by the Contractor.
- E. After spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the Engineer.
- F. The compacted topsoil shall conform to the required lines, grades, and cross sections.

#### 3.05 STOCKPILE CLEANUP

- A. Remove stockpile; leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.
- B. If a borrow area is used, leave area in a clean and neat condition. Grade site surface to prevent freestanding surface water.

**END OF SECTION**



**SECTION 31 23 26**  
**AGGREGATE MATERIALS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Aggregate materials.
  - 2. Source quality control.
  - 3. Aggregate stockpiling and stockpile cleanup.
- B. Related Sections include but are not limited to:
  - 1. Drawings and general provisions of Contract, including General and Supplementary Conditions, apply to work of this section.
  - 2. Division 01 - General Requirement Specification Sections.
  - 3. Division 31 - Earthwork Specification Sections
  - 4. Division 32 - Exterior Improvements Specification Sections

1.02 REFERENCE STANDARDS

- A. Reference Standards include but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT), Standard Specifications for Road and Bridge Construction, latest edition.
    - a. Any reference to NDDOT specifications shall not include references to measurement and/or payment procedures unless otherwise specified.
  - 2. ASTM C33 - Standard Specification for Concrete Aggregates.
  - 3. ASTM C136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
  - 4. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
  - 5. ASTM D2487 - Classification of Soils for Engineering Purposes.
  - 6. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 7. ASTM D3017 - Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 8. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.03 SUBMITTALS FOR REVIEW

- A. Section 01 33 00 Submittals: Procedures for submittals.
- B. Samples: Submit in air-tight containers, 40 pound (lb.) sample of each type of fill to testing laboratory.
- C. Laboratory Results: Submit pre-construction laboratory tests of proposed aggregates for approval .

1.04 QUALITY ASSURANCE

- A. Section 01 45 00 - Quality Control: Field Samples.

- B. Materials Source: Submit name of imported materials source.
- C. Provide materials from the same source throughout the Work. Change of source requires Engineer approval.

**PART 2 PRODUCTS**

2.01 AGGREGATE MATERIALS

- A. Fine Aggregate (Type A4): Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter; graded in accordance with ASTM C33 fine aggregate.
- B. Coarse Aggregate (Type A1): Well graded crushed stone or gravel conforming to the requirements of ASTM C33, Gradation 67.
- C. Gravity PVC/HDPE Sewer Pipe Bedding Aggregate: Special Class 1 PVC pipe bedding material graded in accordance with ASTM C136, within the limits specified in the table within this Section.
- D. RCP Storm Sewer Bedding Aggregate: Class 4 aggregate graded in accordance with ASTM C136, within the limits specified in the table within this Section.
- E. PVC Water Pipe Bedding Aggregate: Class 6 aggregate graded in accordance with ASTM C136, within the limits specified in the table within this section.
- F. Coarse Aggregate (Base Course and Type A3): Gravel; Angular crushed, or natural stone; free of shale, clay, friable material and debris; of one of the following three materials:
  - 1. Class 5 Aggregate as specified in Section 816 of the North Dakota Department of Transportation (NDDOT), Standard Specifications for Road and Bridge Construction, latest edition.
  - 2. Crushed Recycled Concrete Pavement. Maximum size of crushed material shall be 1 ½ inches. Maximum percentage passing the #200 sieve shall be 10 percent. Material shall be blended to provide a uniform consistent mixture. Rubble material from building demolition shall not be acceptable.
  - 3. Salvaged Base Course meeting requirements of North Dakota Department of Transportation Standard Specification Section 817.
- G. Manhole Bedding Aggregate: Gravel; Angular crushed, or natural stone; free of shale, clay, friable material and debris; Class 3 aggregate graded in accordance with ASTM C136, within the limits specified in the table within this Section.
- H. See the following table for grain size distributions applicable to Aggregates.

	Class 3	Class 5	Class 2	Class 4 (1)	Size 2 (1)	Class 6 (1)	Class 27	Special Class 1 PVC (1)
Sieve Size	Total Percent Passing							
2"					100			
1-1/2"	100				90-100			

1"		100			20-55			
3/4"		90-100	100	100	0-15	100		100
5/8"							100	92-100
1/2"							70-100	
3/8"			50-95		0-5	90-100		36-64
No. 4	35-85	35-70		35-85		35-75	40-70	19-28
No. 8							33-55	
No. 10			0-15					
No. 16							25-45	9-16
No. 30	20-50	16-40	0-4	10-50			15-35	
No. 50							10-30	
No. 100								0-2
No. 200	0-15	4-10		0-20		0-8	2.0-9.0	
Shale (2)	12%	12%		15%			5%	
LA								
Abrasion (2)	50%	50%		50%			40%	
Plasticity Index (3)				10-30			3	
Fractured Faces (4)		10%		10%			50%	

I. Notes:

1. Special Designation - not comparable NDDOT specification
2. Maximum Percentage
3. Determined on Minus No. 200 Material.
4. Minimum percentage with at least 2 fractured faces, determined on Plus No. 8 Material.

2.02 SOURCE QUALITY CONTROL

- A. Section 01 45 00 - Quality Control: Source testing and analysis of aggregate material.
- B. Contractor shall submit samples, obtain laboratory results, and submit for Engineer's approval prior to construction.
- C. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136, ASTM D698 and ASTM D3017. Provide one test for each stockpile used, new test for every change in material.
- D. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136, ASTM D698 and ASTM D3017. Provide one test for each stockpile used, new test for every change in material.

- E. Aggregates Intended for Bedding or Backfill - Testing and Analysis: Perform moisture density relationship and moisture content testing in accordance with ASTM C136, ASTM D698 and ASTM D3017. Perform one test for each change in bedding or backfill material source.
- F. If tests indicate materials do not meet specified requirements, change material or material source and retest.
- G. Obtain 1 field sample for every 5,000 cy of each type of aggregate delivered to the project, and perform laboratory testing for proof of compliance with the specification.
- H. Provide materials of each type from the same source throughout the Work.

### **PART 3 EXECUTION**

#### **3.01 STOCKPILING**

- A. Stockpile materials on site in an area within construction limits. Remove and dispose of legally from the site unsuitable, excess material not being used.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Prevent intermixing of material types or contamination of stockpiled materials.
- E. Limit height of stockpile to 72 inches. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

#### **3.02 STOCKPILE CLEANUP**

- A. Remove stockpile, leave stockpile area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade site surface to prevent free standing surface water.

**END OF SECTION**

**SECTION 31 25 00**  
**EROSION AND SEDIMENTATION CONTROLS**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.
- B. Restoration of areas eroded due to insufficient preventative measures.
- C. Related Sections include, but are not limited to:
  - 1. Section 31 11 00 – Clearing and Grubbing
  - 2. Section 31 22 00 – Grading
  - 3. Section 31 23 16 – Excavating
  - 4. Section 31 23 16.13 – Trenching
  - 5. Section 31 23 24 – Soil Materials
  - 6. Section 32 05 50 – Restoration of Disturbed Areas
  - 7. Section 32 92 19 – Seeding

1.02 REFERENCES

- A. General Permit Authorization to Discharge Storm Water Associated with Construction Activity under the National Pollutant Discharge Elimination System/State Disposal System Permit Program.
- B. North Dakota Department of Transportation (NDDOT) Erosion and Sediment Control Handbook – Latest Edition
- C. North Dakota Department of Health (NDDH) – Division of Water Quality – “A Guide to Temporary Erosion Control Measures” – Latest Edition
- D. ASTM D 4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus; 2005.
- E. ASTM D 4491 – Standard Test Methods for Water Permeability of Geotextiles by Permittivity; 1999a (Reapproved 2004).
- F. ASTM D 4533 – Standard Test Method for Trapezoid Tearing Strength of Geotextiles; 2004.
- G. ASTM D 4632 – Standard Test Method for Grab Breaking Load and Elongation of Geotextiles; 1991 (Reapproved 2003).
- H. ASTM D 4751 – Standard Test Method for Determining Apparent Opening Size of a Geotextile; 2004.
- I. ASTM D 4873 – Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples, 2002.

### 1.03 PERFORMANCE REQUIREMENTS

- A. Comply with all requirements of the North Dakota Department of Health & Environmental Division of Water Quality for erosion and sediment control.
- B. Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained.
  - 1. Cosign on SWPP Permit obtained by Construction Manager.
- C. Timing: Put preventative measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.
- D. Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.
  - 1. Control movement of sediment and soil from temporary stockpiles of soil.
  - 2. Prevent development of ruts due to equipment and vehicular traffic.
  - 3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- E. Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.
  - 1. Prevent windblown soil from leaving the project site.
  - 2. Prevent tracking of mud onto public roads outside of the site.
  - 3. Prevent mud and sediment from flowing onto sidewalks and pavements.
  - 4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.
- F. Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
  - 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
  - 2. If sediment basins are used as temporary preventative measures, pump dry and remove deposited sediment after each storm.
- G. Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.
  - 1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
- H. Open Water: Prevent standing water that could become stagnant.
- I. Maintenance: Maintain temporary preventive measures until permanent measures have been established.

## 1.04 REFERENCE STANDARDS

- A. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)); 2012 (Reapproved 2021).

## **PART 2 PRODUCTS**

### 2.01 MATERIALS

- A. Silt Fence.
  - 1. Geotextile Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:
    - a. Average Opening Size: 30 U.S. Std. Sieve, maximum, when tested with ASTM D 4751.
    - b. Permittivity: 0.05 sec<sup>-1</sup>, minimum when tested in accordance with ASTM 4491.
    - c. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D 4355 after 500 hours exposure.
    - d. Tensile Strength: 100 lb-f, minimum, in cross-machine direction; 124 lb-f, minimum, in machine direction; when tested in accordance with ASTM D 4632.
    - e. Elongation: 15 to 30 percent, when tested in accordance with ASTM D 4632.
    - f. Tear Strength: 55 lb-f., minimum when tested in accordance with ASTM D 4533.
    - g. Color: Manufacturer's standard.
  - 2. Posts: 5 feet long:
    - a. Steel T-section, with minimum mass of 1.26 lb per linear foot.
- B. Storm Sediment Filter.
  - 1. Shall be one of the following.
    - a. Sandbags.
      - 1) Woven, polypropylene fabric sewn together with double stitching.
      - 2) Overall sandbag size shall be at least 12 x 24 inches.
      - 3) Bags shall be filled ½ full with sand.
    - b. Drop-in Sediment Trap.
      - 1) Geotextile Fabric unit that inserts into the inlet.
        - (a) Shall be:
          - (1) Dandy Sack by Dandy Products, Inc.
          - (2) Siltsack by ACF Environmental.
          - (3) or equal.
- C. Rock for Vehicle Tracking Pad.
  - 1. Clean 1 to 3 inch crushed rock.

- D. Slope Erosion Protection shall be one of the following.
- a. Erosion Control Blanket.
  - b. Shall consist of a uniform web of interlocking fibers meeting the requirements of Section 856.01 of the North Dakota Department of Transportation Standard Specifications for Construction, 2008 Edition.
  - c. The netting shall be natural and biodegradable containing sufficient UV stabilization for breakdown to occur within a normal growing season.
  - d. No photo degradable plastics shall be used.
  - e. The erosion control blankets acceptable for use on this project include:
    - 1) Geocoir/DeKoWe.400.
    - 2) or equal.
  - f. Bonded Fiber Matrix. (BFM)
  - g. The fibers shall be composed of 100% wood or wood by-products. A minimum of 25% of the fibers shall average 10.16 mm (0.4 inches) in length and 50% or more shall be retained on a Clark Fiber Classifier 24 mesh screen. Fibers shall be colored with a water soluble, non-toxic dye, to aid in uniform application over the site.
  - h. The binder shall be a hydro colloid based (guar gum) with added slow-release and agricultural based fertilizers. The binder shall not dissolve or disperse upon rewetting.
  - i. The BFM slurry shall dry to form a crust approximately 3-6 mm (1/8 to 1/4 inches) thick adhering to the soil surface.
  - j. The moisture content of the matrix shall be 12% +/- 3% by weight.
  - k. The matrix shall consist of materials that are 100% biodegradable and 100% beneficial to plant life.
  - l. The matrix shall provide 100% continuous coverage and shall have no holes greater than 1 mm in size.
  - m. The hydrated matrix density shall be approximated by a slump test prior to application.
  - n. The BFM mulch: water ratio shall be as per the manufacturer recommendations. The minimum BFM mulch to water ratio is 50 lbs. BFM mulch and 100 gallons water. The water rate will vary between 100 gallons and 125 gallons per 50 lbs., depending on which of the products is used.
  - o. The Bonded Fiber Matrix mulch products acceptable for use on this project include:
    - 1) EcoAegis – Manufactured by CANFOR.
    - 2) Soil Guard – Manufactured by Mat, Inc.
    - 3) ConWed 3000 – Manufactured by ConWed Fibers, Inc.
2. Fiber Roll
- a. Fiber rolls shall consist of hay or straw free of noxious weeds, or wood excelsior that has been compressed and stuffed into degradable netting.
  - b. The roll diameter shall be a minimum of six inches.
  - c. All weighted fiber rolls shall contain a weighted core with a minimum weight of eight pounds per foot.



## **PART 3 EXECUTION**

### 3.01 EXAMINATION

- A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

### 3.02 PREPARATION

- A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.
- B. The Contractor shall follow all requirements of the current North Dakota Department of Health & Environmental Division of Water Quality regulations.
- C. The Contractor shall develop a Storm Water Pollution Prevention Plan as required by the North Dakota Department of Health & Environmental Division of Water Quality.
- D. The Contractor shall complete and sign the Notice of Intent and submit to the North Dakota Department of Health & Environmental Division of Water Quality.

### 3.03 SCOPE OF PREVENTIVE MEASURES

- A. Vehicle Tracking Pad at Construction Entrances: Traffic-bearing aggregate surface.
  - 1. Width: As required; 24 feet, minimum.
  - 2. Length: 50 feet, minimum.
  - 3. Provide at each construction entrance from public right-of-way.
  - 4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.
- B. Natural vegetation shall be retained whenever feasible.
- C. Land grading and excavating shall be kept at a minimum to reduce the possibility of creating runoff and erosion problems which require extensive control measures.
- D. Land exposure shall be minimized in terms of area and time.
- E. Silt Fence.
  - a. Provide along the perimeter edge of soil stockpiles located on the Owner's property.
  - b. Provide at locations shown on the Plans.
- F. Storm Sediment Filters.
  - 1. Place immediately after new storm sewer inlets are installed and immediately before land is disturbed adjacent to existing storm sewer inlets.
- G. Slope Erosion Protection.

- a. Place at locations shown in the Plans.
- H. Fiber Roll
- I. Place at locations shown in the Plans.

### 3.04 INSTALLATION

#### A. Vehicle Tracking Pad.

1. The rock area shall be a minimum of 6 inches deep, extend the full width of the ingress/egress area and be at least 50 ft long; however, longer entrances may be required to adequately clean tires.
2. Geotextile fabric may be used to prevent migration of mud from the underlying soil into the rock.

#### B. Storm Sediment Filters.

1. Sandbags.
  - a. Place around inlet providing a minimum of 12 inch horizontal clearance.
  - b. Place a minimum of 3 bags in height with staggered joints.
2. Drop-in Sediment Trap.
  - a. Place as recommended by the manufacturer.

#### C. Slope Erosion Protection.

1. Bonded Fiber Matrix (BFM).
  - a. The Contractor shall install the BFM as per the manufacturer's instructions with the following minimum guidelines:
    - 1) The BFM shall be applied with hydraulic spray equipment by a manufacturer's certified applicator.
    - 2) Application shall be done at least 24 hours in advance of projected rainfall to allow the BFM mulch adequate time to dry.
    - 3) The BFM mulch shall be applied into two stages (one-half rate) with ample time to dewater the first application.
    - 4) The BFM mulch shall be applied from at least two alternate directions, preferably 90 degrees apart if possible, to ensure all soil faces are covered.
    - 5) The installation rate of the BFM mulch shall be 3500 lbs per acre, minimum and 100% continuous coverage.
    - 6) After the BFM mulch is applied and dried for 24 to 48 hours, the Owner's Representative will sample and quantify a portion of the installation to ensure the minimum 3500 lbs per acre has been applied. If it is found that the desired 3500 lbs per acre has not been achieved, the Contractor shall apply an additional amount to equal the desired 3500 lbs per acre within 48 hours of receiving the test results. The Contractor will not be paid extra mobilization costs for spraying additional material.
2. Erosion Control Blanket.
  - a. The Contractor shall install the blanket as per the manufacturer's instructions with the following minimum guidelines:

- 1) The Contractor shall roll out or lay the blankets parallel to the direction of water flow.
- 2) The blankets shall be spread evenly without stretching and so the fibers are in direct contact with the soil over the entire area.
- 3) Adjacent strip edges shall overlap each other at least 4 inches.
- 4) Strip ends shall overlap each other at least 7 inches.
- 5) All overlaps shall be made with the upgrade strip placed over the down grade strip intervals.
- 6) The Contractor shall bury the upgrade end of each blanket strip at least 6 inches in a vertical slot in the soil with the soil being pressed firmly against the embedded blanket.
- 7) All joints and outer edges of the blanket shall be stapled at 3 foot intervals or less.
- 8) Staples placed at junctures and strip ends shall have a maximum spacing of 16 inches.
- 9) Staples shall be placed throughout the blanket at a maximum spacing of 3 feet.
- 10) All staples shall be inserted flush with the ground surface.

D. Silt Fences:

1. Store and handle fabric in accordance with ASTM D 4873.
2. Install with top of fabric at nominal height and embedment indicated on drawings.
3. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
4. Fasten fabric to steel posts using "U" shaped clips.

E. Fiber Roll:

1. Each fiber roll shall be overlapped by 1 foot minimum and tied tightly together, to prevent flow between the fiber roll ends.
2. Fiber rolls shall be trenched and staked according to manufacturer's specifications.
3. Six inch fiber rolls shall be used for sheet flow protection on backslopes and foreslopes.
4. Twelve to twenty inch fiber rolls shall be used in ditch bottoms and in areas where shallow concentrated flow is present.

### 3.05 MAINTENANCE

- A. Inspect preventative measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.
  1. All inspections and maintenance conducted during construction shall be recorded in writing and retained in accordance with the storm water permit.
- B. All removed tree material shall become the property of the Contractor and shall be disposed of off-site in Contractor furnished disposal area.

- C. All stumps and roots shall be removed to a minimum of 3 feet below grade.
- D. Backfill excavation with suitable on-site soil materials or engineered fill compacted to a minimum of 95% of Standard Proctor Density, ASTM D698.
- E. Silt Fences:
  - 1. Promptly replace fabric that deteriorates unless need for fence has passed.
  - 2. Remove silt deposits that exceed one-third of the height of the fence.
  - 3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff of other causes.
- F. Fiber Rolls:
  - 1. Sediment deposits shall be removed when the deposit reaches half the height of the fiber roll or when directed by the Engineer.
  - 2. Fiber rolls shall remain in place until the vegetative cover is restored to 70 percent of the preexisting vegetation.

### 3.06 CLEAN UP

- A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Engineer.
- B. Where removal of temporary measures would have exposed soil, shape surface to an acceptance grade and finish to match adjacent ground surfaces.

**END OF SECTION**

**SECTION 31 34 19**  
**GEOTEXTILE FABRIC**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Woven Geotextile Fabric.
  - 2. Non-Woven Geotextile Fabric
- B. Related Sections include, but are not limited to:
  - 1. Division 01 in its entirety.
  - 2. Section 31 22 00 - Grading.
  - 3. Section 32 11 23 - Aggregate Base Course.

1.02 REFERENCES

- A. Reference Standards include, but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, latest edition.
  - 2. ASTM D3786/D3786M - Mullen Burst.
  - 3. ASTM D4355 - UV-Resistance.
  - 4. ASTM D4491 - Permittivity.
  - 5. ASTM D4595 - Wide Width Tensile Strength.
  - 6. ASTM D4632 - Grab Tensile Strength and Elongation.
  - 7. ASTM D4751 - Apparent Opening Size (AOS).
  - 8. ASTM D4833 - Puncture and Trapezoid Tear.
  - 9. ASTM D4873 - Guide for Identification, Storage, and Handling of Geosynthetics

1.03 SUBMITTALS

- A. Submit under provisions of Division 01.
- B. Provide product data on Geotextile Fabric.
- C. Submit manufacturer's installation instructions. Indicate special procedures and conditions requiring special attention.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. The geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement.
- B. Rolls shall be stored in a manner which protects them from the elements. At no time shall the geotextile be exposed to ultraviolet light for a period exceeding fourteen days.
- C. The geotextile rolls shall be labeled as per ASTM D 4873, "Guide for Identification, Storage, and Handling of Geosynthetics".

## **PART 2 PRODUCTS**

### **2.01 MATERIAL**

- A. Woven fabric for reinforcement applications: Geotextile fabric shall be Type R1 woven fabric as specified in Section 858 of the North Dakota Department of Transportation Standard Specifications for use beneath pavement and aggregate base. Mirafi 600X, LINQ GTF 300, Amoco Propex 2006, or approved equal.
- B. Non-woven fabric for separation or rip rap applications: Geotextile fabric shall be Type RR non-woven fabric as specified in Section 858 of the North Dakota Department of Transportation Standard Specifications for use as a separation fabric between fine soils and rock riprap, or in other separation or drainage applications.
- C. Underdrain Fabric for PVC underdrain encasement: Geotextile fabric shall be Type D3 or D4 fabric used as a sock around all PVC underdrains. The fabric shall be as specified in Section 858 of the North Dakota Department of Transportation Standard Specifications.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify subgrade has been inspected, gradients and elevations are correct; surface is dry, and ready to receive Work.

### **3.02 PREPARATION OF SUBGRADE**

- A. Correct irregularities in subgrade gradient and elevation by scarifying a minimum of 12-inches, reshaping, and re-compacting.
- B. Do not place on soft, muddy, or frozen surfaces.

### **3.03 PLACEMENT**

- A. The geotextile shall be laid out smooth without wrinkles or folds on the prepared subgrade in the direction of the construction traffic.
- B. Adjacent geotextile rolls shall be overlapped a minimum of 2.5 feet, ends of rolls shall be overlapped 3 feet.
- C. On curves, the fabric may be folded or cut to conform to the curves. The fold or overlap shall be in the direction of construction and shall be held in place by staples, pins or aggregate piles.
- D. Damaged areas shall be repaired by overlaying the area with sufficient material to overlap on all edges by at least 2.5 feet.
- E. The aggregate base material shall be placed by end dumping onto the geotextile from the edge or over previously placed base aggregate. Construction equipment shall not be allowed directly on the geotextile fabric.

- F. A minimum of 8" of aggregate must be placed on the geotextile prior to the movement of construction equipment above the fabric.
- G. Turning movements must be carefully monitored to avoid rutting of the aggregate. Any ruts occurring during construction shall be filled with additional gravel aggregate and compacted to the specified density.
- H. If placement of the backfill causes damage to the geotextile, the damaged area shall be repaired as described in Section 3.03.D.
- I. Install geotextile fabric and aggregate base material beneath areas of pavement, other site surfacing as shown on typical sections, or indicated on drawings.

#### 3.04 FIELD QUALITY CONTROL

- A. Installed geotextile shall be inspected by the Engineer prior to placement of materials over the geotextile.

**END OF SECTION**

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# **DIVISION 32 EXTERIOR IMPROVEMENTS**



**SECTION 32 05 50**  
**RESTORATION OF DISTURBED AREAS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
1. Restoration of areas designated for restoration.
  2. Restoration of all items not specifically identified for restoration, but damaged through construction.
  3. Restoration of paved surfaces.
  4. Restoration of parking lots.
  5. Restoration of driveways, sidewalks, curb and gutter, and brick pavers.
  6. Restoration of lawn areas and berms.
  7. Clean up.
- B. Related Sections include, but are not limited to:
1. Section 31 22 00 – Grading.
  2. Section 31 23 24 – Soil Materials.
  3. Section 31 23 26 – Aggregate Materials.
  4. Section 32 11 23 – Aggregate Base Course.
  5. Section 32 12 16 – Asphalt Pavement.
  6. Section 32 13 13 – Concrete Pavement.
  7. Section 32 92 19 - Seeding

1.02 REFERENCE STANDARDS

- A. References include, but are not limited to:
1. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, latest edition.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Material Sections Include:
1. Soil Materials: Per Section 31 23 24.
  2. Aggregate Material: Per Section 31 23 26.
  3. Asphalt Pavement: Per Section 32 12 16.
  4. Concrete Pavement: Per Section 32 13 13.
  5. Seeding: Per Section 32 92 19.

**PART 3 EXECUTION**

3.01 EXECUTION

- A. Observe all surface features requiring protection, removal and replacement, and/or restoration prior to construction.

- B. The Contractor shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.
- C. The Contractor shall be responsible for all damage or injury to property of any character during the prosecution of the Work, resulting from any act, omission, or neglect in the manner or method of executing the Work, or at any time due to defective Work or materials. This responsibility will not be released until the project has been completed and accepted.
- D. When any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, or neglect, in the execution of the Work, or in consequence of the non-execution thereof by the Contractor, Contractor('s) shall restore, at Contractor('s) own expense, such property to the condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or Contractor('s) shall make good such damage or injury in an acceptable manner.

### 3.02 RESTORATION

- A. Restore all areas disturbed by construction to a condition equal to or better than existed prior to construction.
- B. Replace, restore, repair, or otherwise make good any damage done to any tree, bush, or shrub, which is not specifically designated for removal.
- C. Restore items such as street signs, power poles, fences, retaining walls, streetlights, and others, whether or not specifically identified on the Plans, to a condition equal to or better than existed before construction.
- D. Restore pavement markings on surfaces that were removed or damaged to match existing markings with suitable material to meet the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition.
- E. Restoration Schedule:
  - 1. Asphalt Pavement: per Section 32 12 16 and Drawings.
  - 2. Sidewalk/Bikepath: per Section 32 13 13 and Drawings.
  - 3. Concrete Pavement: per Section 32 13 13 and Drawings.
  - 4. Berms and Lawn Areas: place topsoil per Section 31 23 24 and seed areas disturbed by construction per Section 32 92 19.
- F. Remove all excess dirt, concrete, forms, lumber, and debris from project site immediately upon completion of Work.
- G. Contractor shall be required to clean paved areas to their original condition before final payment will be made per Division 1 Contract Close-out.

- H. Prior to re-opening any portion of Work completed, all streets, sidewalks, driveways, handicap curb ramps, parking lots, and curb and gutter shall be installed.
1. All damage done to streets, driveways, sidewalks, parking lots, berms, etc., due to the Contractor's construction techniques shall be repaired at the Contractor's expense prior to final payment.

**END OF SECTION**

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**SECTION 32 11 23**  
**AGGREGATE BASE COURSES**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Aggregate base course.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

- A. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).
- B. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.
- C. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2023.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittals for submittal procedures.
- B. Samples: 10 lb (4.5 kg) sample of each type of aggregate; submit in air-tight containers to testing laboratory.
- C. Materials Sources: Submit name of imported materials source and supplier(s). Provide materials from the same source throughout the Work. Change of source requires Engineers approval.
- D. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- E. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When aggregate materials need to be stored on site, locate where directed by Owner.
- C. Aggregate Storage, General:
  - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
  - 2. Prevent contamination.
  - 3. Protect stockpiles from erosion and deterioration of materials.

## **PART 2 PRODUCTS**

### 2.01 MATERIALS

- A. Course Aggregate Type A3: as specified in Section 31 23 26.

### 2.02 SOURCE QUALITY CONTROL

- A. See Section 01 45 00 - Quality Control for general requirements for testing and analysis of aggregate materials.

## **PART 3 EXECUTION**

### 3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

### 3.02 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place aggregate on soft, muddy, or frozen surfaces.

### 3.03 INSTALLATION

- A. Place aggregate in maximum 6 inch (152 mm) layers and compact to specified density. When aggregate is placed on geotextile fabric, place a minimum of 8 inch depth before operating equipment over fabric.
- B. Level and contour surfaces to elevations and gradients indicated.
- C. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- D. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- E. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

### 3.04 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch (6.4 mm) measured with 10 foot (3 m) straight edge.
- B. Scheduled Compacted Thickness: Within 1/4 inch (6.4 mm).
- C. Variation From Design Elevation: Within 1/2 inch (12.8 mm).



### 3.05 FIELD QUALITY CONTROL

- A. See Section 01 45 00 - Quality Control for general requirements for field inspection and testing.
- B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
- C. Contractor shall perform one compaction test for each 2,000 square feet.
- D. If, during progress of Work, tests indicate that compacted materials do not meet specific requirements, remove defective Work, replace, and retest. Contractor to bear all costs associated with defective pavement work.

### 3.06 SCHEDULES

- A. Base Course under Trench: As specified in Section 31 23 23.23 - Backfilling.
- B. Base Course under Sidewalk: Minimum thickness of 6 inches, or as indicated in typical section, of Type A3 aggregate base per Section 31 23 26. Level and compact base course to 98 percent of maximum ASTM D698 dry density.
- C. Base Course under Concrete or Bituminous Pavement: Minimum compacted thickness, as indicated in typical sections, of Type A3 aggregate base course per Section 31 23 26. Level and compact base course to 98 percent of maximum ASTM D698 dry density in 6 inch lifts. When geotextile is used, place entire depth in one lift.
- D. Temporary Traffic Aggregate: Type A3 aggregate base per section 31 23 26. Thickness as specified in bid documents or a minimum of 6 inches, if not specified otherwise.

### 3.07 CLEANING

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

**END OF SECTION**

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**SECTION 32 12 16**  
**ASPHALT PAVING**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Aggregate base course.

1.02 RELATED REQUIREMENTS

- A. Section 31 22 00 - Grading: Preparation of site for paving and base.
- B. Section 31 23 23.23 - Backfilling: Compacted subgrade for paving.
- C. Section 32 11 23 - Aggregate Base Courses: Aggregate base course.

1.03 REFERENCE STANDARDS

- A. AI MS-2 - Asphalt Mix Design Methods; 2015.

1.04 PERFORMANCE REQUIREMENTS

- A. Paving: Designed for H20 classification.

1.05 SUBMITTALS

- A. See Section 01 33 00 for submittal procedures.
- B. Product Data: Furnish properties data on aggregates, asphalt cement, bituminous mixtures, asphalt binder, and other materials required for the mix in accordance with Sections 01 33 00 and 01 45 00 at least 7 days prior to beginning paving operations. Engineer must approve job mix formula prior to its use on Project.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with North Dakota Department of Transportation (NDDOT) standard..
- B. Mixing Plant and Mixing Plant Operations: Conform to North Dakota Department of Transportation Standard Specification for Road and Bridge Construction, latest edition and The Asphalt Institute (TAI) MS-3 Asphalt Plant Manual.
- C. Obtain materials from same source throughout.
- D. Paved surfaces shall be warranted against any materials and/or workmanship defection for a period of 12 months from placement.
- E. The mix design and development of the Job Mix Formula shall be generated by a laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) at the contractor's expense.
- F. For tack coat, ensure a sufficient bond between the surface being paved over and the overlying asphaltic course being placed.

- G. Conform to applicable code for paving work on public property.
- H. Allow minimum of 1 month between completion of crack sealing and paving operation to allow seal to cure. The crack sealing should be accomplished with a recessed configuration if paving is to proceed in the same season.
- I. Dispose of all waste material or reject material by approved methods.
- J. Conform to the Manufactureer's Material Safety Data Sheet (MSDS) for storage and handling of emulsion products.

1.07 FIELD CONDITIONS

- A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F (4 degrees C), or surface is wet or frozen.
- B. No work shall be permitted in the spring until the frost has disappeared and the subgrade is stable so as to support the equipment without rutting, shoving, pumping, or other displacement.
- C. Do not spray asphalt tack coat if weather conditions call for rain before the emulsion can cure.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Asphalt Cement: Shall be performance grade asphalt cement meeting the requirements of AASHTO MP1 and as shown on the plans. The asphalt used in the mix shall be FAA 43. The oil used in the asphalt mix shall be PG 58-28
- B. Aggregate for Mix: Shall be in accordance with Section 430.03.B of the NDDOT Standard Specifications for Road and Bridge Construction, latest edition.

2.02 TACK COAT

- A. SS1H or CSS1H Emulsion meeting the appropriate requirements of ASTM for the specific grade of emulsion. Non-tracking tack products may also be used as approved by the Engineer.
- B. Storage and handling of the emulsion should be performed in accordance with MS-19.
  - 1. Aggregate for Base Course: In accordance with State of \_\_\_\_\_ Highways standards.

2.03 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Contractor shall develop the Superpave FAA41 asphalt mixutre in accordance with Section 430 of the NDDOT Standard Specification for Road and Bridge Construction, latest edition, to meet the requirements of this Specification. Prior to the production of any Superpave asphalt mixutre, submit the proposed mix design with supporting test data indicating compliance with all Superpave mix

design criteria. The Contractor shall utilize an AMRL accredited testing firm for the development of the mix design, testing for the performance of the asphalt cement, gradation of the aggregate mix, and requirements of the L.A. Abrasion. The Engineer shall approve the Job Mix Formula submitted by the Contractor.

- B. Traffic Levels: The type of bituminous mixture for this project shall be designed based on the traffic level of less than one (1) Million Equivalent Single Axle Loads (ESALs)
- C. Layer Thickness: The lift thickness should be three times the nominal maximum size of the aggregate.
  - 1. Asphalt Base Course: 3.0 to 6 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

### **PART 3 EXECUTION**

#### 3.01 EXAMINATION

- A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

#### 3.02 AGGREGATE BASE COURSE

- A. Place and compact aggregate base course.

#### 3.03 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with manufacturer's instructions.
- B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 0.10 gallons per square yared of undiluted asphalt..
- C. All vertical faces shall have 2 application of tack coat prior to paving. This includes, but is not llimited to, curb and gutter faces and all longitudinal bituminous seams.
- D. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.
- E. All conventional asphalt emulsions shall be diluted with water at a 50:50 ratio and applied at twice the recommended application rate. Polymer modified and non-tracking emulsions shall not be diluted. Dilution of the emulsion product should be performed at the emulsion terminal or in a tank at the asphalt plant. Emulsions should not be diluted in the distributor at the project site.
- F. Do not allow asphalt emulsion to freeze.

#### 3.04 PLACING ASPHALT PAVEMENT

- A. All mixtures shall be spread and finished with a self-propelled, bituminous paver, to the requred grade and cross section, leaving the mixutre uniformly dense,

smooth, and free from irregularities.

- B. The speed of the bituminous paver shall be controlled to place the mixture uniformly and continuously without tearing or gouging. The speed shall not exceed the Manufacturer's recommendation, and shall be coordinated with the output of the plant to provide for a smooth, continuous operation, minimizing starting and stopping.
- C. Compact pavement by rolling to specified density as follows:
  - 1. Compaction shall consist of initial or breakdown rolling, intermediate rolling, and final or finish rolling with rollers meeting all requirements of NDDOT Standards Specifications Section 151.01.
  - 2. Breakdown rolling shall consist of one or more complete coverages with a vibratory steel wheel roller or a rubber tired roller.
  - 3. Breakdown rolling shall be followed by intermediate rolling with either a rubber tired roller or a vibratory steel wheel roller and shall be continued until the surface is tightly bound and shows no displacement under the roller.
  - 4. Intermediate rolling shall be completed before the mat temperature falls below 185 degrees F.
  - 5. Final rolling shall be performed with a static wheel roller and shall continue until roller marks are eliminated. Contractor may be required to modify rolling sequence to best suit the construction conditions.
  - 6. Do not displace or extrude pavement from position. Hand compact in area inaccessible to rolling equipment.
- D. Uniformly blend pavement surface into elevations at curbs, valve box castings, and other critical points of contact. Place pavement so that the pavement is 3/8 inches higher than the edge of the structure after the pavement has been compacted.
- E. Do not allow drainage to be impeded or casting covers to become difficult to remove.
- F. All transverse and longitudinal joints, high or low areas, and surface irregularities, shall be leveled, filled, or raked prior to compaction. Any loose material dropped on previously compacted lanes shall be removed immediately.
- G. Ensure joints made during paving operations are straight, clean, vertical, and free of broken or loose material. Joints shall be tacked and constructed with adequate bond on abutting surfaces. Construction joints in successive courses shall be placed so that joints do not fall on the same vertical plane.
- H. The sequence of rolling operations and the selection of type and number of rollers shall be commensurate with the production, and shall be adequate to obtain the specified density before the mat temperature falls below 185 degrees F.
- I. Install all bituminous pavement 3.5-inches and greater in thickness in a minimum of two lifts. Maximum thickness of a base course lift shall be 3.0-inches.

- J. Ensure surface of completed asphalt pavement is true to lines, profiles, and elevations indicated and matches existing grade.
- K. The surfaces of previously placed layers shall be swept and a tack coat applied before spreading the next layer.
- L. The overall thickness shown on the Drawings shall be the minimum finished, in-place, compacted thickness of bituminous pavement.
- M. Protect newly paved surfaces from traffic and mechanical damage until surface has cooled to 140 degrees F.
- N. Any low or high defective areas shall be corrected immediately at the contractor's expense. Corrective work shall include patching, cutting out the surface and replace with fresh, bituminous mixture, or by milling the surface.
- O. Clean up paving area.
- P. Ensure manhole covers are clean of asphalt material and tack coat and returned to the condition they were prior to asphalt paving activities.

### 3.05 TACK APPLICATION EQUIPMENT

- A. Tack distributor shall be designed, equipped, and operated so that tack material is applied at the specified rate per square yard with uniform pressure over the required application.
- B. The distributor shall be equipped with an onboard computer that determines the relationship between the distributor travel speed and pump speed to ensure a consistent application rate.
- C. An accurate calibrated thermometer with a range covering the specified application temperature for tack material shall be mounted at approximately center height of the tank with the stem extending into the tack material.
- D. The distributor shall have a full circulating system with a spray bar, adjustable laterally and vertically. The spray bar shall be maintained at a constant height above the pavement under variable load conditions.
- E. The distributor shall have full circulation spray bars with lateral and vertical adjustments.
- F. Ensure that all nozzles are of the same size, type, and angle to ensure uniform application of emulsion.
- G. The distributor shall be checked and calibrated. A certificate of the calibration shall be posted in the driver's compartment stating that the distributing system is in good working condition and when used with the charts and instructions furnished by the manufacturer will give the required results. The certificate shall bear the date of the calibration and signature of the calibrating agency.

- H. Use pumps with proper clearances for handling to avoid binding and seizing. Avoid repeated pump cycling or frequent pumping.
- I. Do not mix different classes, grades, or types of emulsified asphalt in storage tanks, transports or distributors. Make sure tanks are clean before changing to another class, grade or type.
- J. Pump from the bottom of tank.
- K. Do not overheat asphalt emulsion.

### 3.06 APPLICATION OF TACK COAT

- A. Maintain proper distributor spray bar height and spray nozzle angle for proper coverage.
- B. Maintain proper distributor speed.
- C. Sweep and clean surfaces to be tack coated prior to application. Provide motorized brooms with a positive means of controlling vertical pressure and with the capability to clean the road surface prior to spraying the bituminous material.
- D. Do not apply more tack coating than can be covered by the same day's operation. Perform operations only during daylight hours and not during foggy weather.
- E. Do not apply tack coating or fog seal when ambient air temperature is consistently below 40 degrees F or when surface is wet.
- F. Do not over-spread tack coating. If "fat spots" develop, spread out excess emulsion by pneumatic tire rolling before placing pavement.
- G. Apply tack coat as directed in Section 401 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition and NAPA's Best Practices for Emulsion Tack Coats. Hand spray wands and crack-sealing buckets are not acceptable method of applying tack coat emulsion except on the vertical face of an adjoining lift of pavement.
- H. Apply bituminous tack coat to existing bituminous pavement and to the surface of each lift or course constructed, other than the final course. Apply in a uniform rate with no missed areas permitted.
- I. The bituminous tack coat shall be applied at a uniform rate of not less than:
  - 1. 0.10 gallons per square yard, or undiluted asphalt emulsion (as supplied from the emulsion terminal); application rate shall be adjusted if necessary to attain bond between courses.
  - 2. 0.20 gallons per square yard, for diluted asphalt emulsion (with water added at the terminal or plant emulsion tank).
- J. The temperature of emulsion shall be between 70 and 160 degrees F at the time of application.



- K. Apply immediately prior to the placement of the next bituminous course or lift. Do not allow public traffic on tack coated areas. The tack coat shall be applied in a manner that offers the least inconvenience to traveling public.
- L. Apply the tack coat on the same day as the proposed surfacing is to be performed. Where emulsified asphalt is specified, dilute one part of water to one part of emulsion and apply the mixture at two times the undiluted rate of application. Allow water to evaporate completely before beginning paving operations. At request of Contractor, Engineer may approve a change in the dilution ratio of the water-emulsion mixture. Sampling and Testing of the emulsion product shall be done at the discretion of the Engineer.
- M. Demonstrate a uniform application of asphalt emulsion producing 100 percent coverage of the surface after curing, as approved by the Engineer. Stop operations if the application demonstration does not meet the coverage requirements.
- N. Contractor shall continuously check Tack Coat application rates to make necessary changes to those rates in order to make sure that the diluted emulsion absorbs into the pavement. Contractor to perform a yield check at the beginning of each project. Engineer may require additional yield checks if the application rate is questioned.
- O. Do not allow traffic on the tacked surface until after the bituminous material has set and will not pick up on vehicle tires.

### 3.07 TOLERANCES

- A. Flatness: Maximum variation of 3/16 inch measured with 10 foot (3 m) straight edge.
- B. Compacted Thickness: Within 1/4 inch (6 mm) of specified or indicated thickness.
- C. Variation from True Elevation: Within 1/2 inch (12 mm).
- D. Transverse slope of surface course shall not vary from the slope shown on plans.
- E. Asphalt cement content within 0.5 percent of approved mix design as determined by asphalt ignition testing.

### 3.08 FIELD QUALITY CONTROL

- A. See Section 01 45 00 - Quality Control, for general requirements for quality control.
- B. Provide field inspection and testing. Take samples and perform tests in accordance with AI MS-2.
- C. At the start of mix production, samples of all aggregate stockpiles shall be randomly collected for each aggregate used in the production mixture. The production aggregates shall be tested for the consensus properties and gradations

presented in Section 2.01 and shall conform to the JMF tolerances. Any change in aggregate source will not be allowed without written notification of the Engineer and the submittal of a new JMF.

- D. Notify testing laboratory to perform density tests when testing is to be performed during construction.
- E. If, during progress of Work, tests indicate that compacted materials do not meet specified requirements, remove defective Work, replace, and retest. Contractor to bear all costs associated with defective pavement Work.
- F. Perform gradation analysis of aggregate once per day as construction progresses or as required by Engineer.
- G. Perform voids in mineral aggregate (VMA) analysis in accordance with NDDOT specifications; minimum frequency of one test per day as construction progresses.

### 3.09 SCHEDULE

- A. Bituminous Pavement: Locations as shown on the Plan Drawings. Minimum compacted thickness as shown on Typical Pavement Sections.

**END OF SECTION**

**SECTION 32 13 13**  
**CONCRETE PAVEMENT**

**PART 1 GENERAL**

1.01 SUMMARY

A. Section includes:

1. Portland cement concrete pavement.
2. Curbs and gutters.
3. Reinforcement.
4. Joints and Joint Sealer.
5. Surface Finish.
6. Curing.
7. Construction requirements.
8. Materials.

B. Related Sections include, but are not limited to:

1. Section 01 10 00 - Summary of Work.
2. Section 01 33 00 - Submittals.
3. Section 01 45 00 - Quality Control.
4. Section 31 10 00 - Sitework Demolition and Removal.
5. Section 31 22 00 - Grading.
6. Section 31 23 24 - Soil Materials.
7. Section 31 23 26 - Aggregate Materials.
8. Section 32 05 50 - Restoration of Disturbed Areas.
9. Section 32 11 23 - Aggregate Base Course.

1.02 REFERENCE STANDARDS

A. References include, but are not limited to:

1. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, latest edition.
2. American Association of State Highway Transportation Officials (AASHTO).
3. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
4. ACI 305R - Recommended Practice for Hot Weather Concreting.
5. ACI 306R - Recommended Practice for Cold Weather Concreting.
6. ASTM A494 - Chemical Admixtures for Concrete.
7. ASTM C33 - Concrete Aggregates.
8. ASTM C94 - Ready Mix Concrete.
9. ASTM C150 - Portland Cement.
10. ASTM C260 - Air-Entraining Admixtures for Concrete.
11. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
12. ASTM C494 - Chemical Admixtures for Concrete.

### 1.03 SUBMITTALS FOR REVIEW

- A. See Section 01 33 00 - Submittals: Procedures for Submittals.
- B. Product Data: Furnish data on aggregates, Portland cement, air-entraining agent, admixtures and other materials and on plant mix design in accordance with Sections 01 33 00 and 01 45 00 at least 7 days prior to beginning paving operations. Engineer must approve mix formula prior to its use on Project.
- C. Samples for Verifications: For each type of exposed color, pattern, or texture indicated.

### 1.04 PERFORMANCE REQUIREMENTS AND QUALITY ASSURANCE

- A. Perform Work in accordance with the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition.
- B. Batch Plant and Mixing Operations: Conform to North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition.
- C. Obtain all materials from same source throughout Project.

### 1.05 REGULATORY AND ENVIRONMENTAL REQUIREMENTS

- A. Conform to applicable standards for paving Work on public and private property.
- B. Perform concrete paving Work in accordance with ACI 301.
- C. Conform to Section 01 55 00 - Vehicular Access and Parking Areas. Minimize interference with traffic.
- D. Perform concrete paving Work during extreme temperature conditions in accordance with ACI 305R for Hot Weather Concreting and ACI 306R for Cold Weather Concreting.
- E. Perform Work when ambient air temperature is rising and above 35 degrees F (measured in the shade and away from artificial heat). Discontinue Work when ambient air temperature is falling and reaches 40 degrees F (measured in the shade and away from artificial heat). Submit details of Contractor's means of cold weather, frost protection for newly deposited concrete to Engineer for approval.
- F. Do not place concrete when base or foundation is wet or frozen or when atmospheric conditions exist that would cause abnormal shrinking and checking of the pavement.

## **PART 2 PRODUCTS**

### 2.01 FORM MATERIALS

- A. Forms shall be of such cross-section and strength, and so secured as to resist the pressure of the concrete when placed, impacted, and by vibration of any

equipment, which they support, without spring or settlement.

- B. Except for metal forms, use new material, as needed. Previously used forms may be reused during the progress of the work, provided they are completely cleaned, reconditioned, recoated for each use, and capable of producing formwork of the required quality.
- C. For exposed concrete surfaces, provide forms that will give an aesthetically pleasing look when completed.

## 2.02 REINFORCEMENT

- A. All reinforcing materials and accessories shall be new, no exceptions.
- B. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet steel deformed bars; uncoated finish.

## 2.03 CONCRETE MATERIALS

- A. Portland Cement: Conform to ASTM C150, Type I, II, or III Portland cement, gray color.
- B. Fine and Coarse Mix Aggregates: Conform to ASTM C33.
  - 1. Shale and other deleterious and friable materials shall not exceed Class 3S weathering region per ASTM C33
- C. Water: Potable, not detrimental to concrete.
- D. Air Entrainment: ASTM C260.
- E. Chemical Admixture: Conforming to ASTM C494: non-chloride accelerating admixtures shall be used.
- F. Color Pigment: ASTM C 979/C 979M, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
- G. Other admixtures only with the written approval of Engineer.

## 2.04 ACCESSORIES

- A. Joint Sealers: Polyurethane elastomeric sealant for filling joints. Acceptable products Sikaflex 2C NS/NL or approved equivalent.
- B. Concrete Curing Materials: Shall conform to the following standards:
  - 1. Cotton mats for curing concrete; AASHTO M73
  - 2. Burlap cloth made from jute or kenaf: AASHTO M182.
  - 3. Waterproof paper for curing concrete: AASHTO M139.
  - 4. Liquid membrane forming compounds for curing concrete: AASHTO M148.
  - 5. White polyethylene sheeting (film) for curing concrete: AASHTO M171.
- C. Form Coating Materials: Shall be light commercial oil or other suitable substance that will prevent adherence of the concrete to the forms and will not reduce the

strength of the concrete. In addition, the materials used for treating forms that will be in contact with concrete surfaces that are exposed to view in the finished work shall be a substance that will not appreciably affect the color of the concrete.

#### 2.05 CONCRETE MIX - BY PERFORMANCE CRITERIA

- A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94.
- B. Provide concrete to the following criteria:
  - 1. Concrete Mix obtaining a minimum 28-day compressive strength of 4,000 psi and minimum 7-day and 28-day moduli of rupture (AASHTO T97) of 550 and 600 psi, respectively.
  - 2. Maximum water/cement ratio of 0.42.
  - 3. Air content between 5 and 7 percent.
  - 4. Maximum slump of 3-inches, when tested without water-reducing admixture.
  - 5. Minimum cement content of 564 lbs./cubic yard.
  - 6. Type C Fly Ash meeting ASTM C618 may be used to replace cement on a 1:1 ratio, up to a maximum of 30 percent by weight.

#### 2.06 EQUIPMENT

- A. Equipment and tools necessary for handling materials and performing all parts of the Work shall be sufficient as to design, capacity, and mechanical condition. The equipment shall be at the job site sufficiently before the start of construction operations.

#### 2.07 SOURCE QUALITY CONTROL AND TESTS

- A. Section 01 45 00 - Quality Control: Provide concrete mix design and testing and analysis of aggregate material.
- B. Contractor shall submit samples, obtain aggregate gradation analyses, and submit for Engineer's approval. Minimum frequency for aggregate gradation analyses shall be one test per 1,000 tons of concrete mix produced or fraction thereof.
- C. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136.
- D. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM C136.
- E. If tests indicate materials do not meet specified requirements, change material or material source and retest.
- F. Provide materials of each type from the same source throughout the Work.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions and that compacted subgrade is dry, stable, proper temperature, and compacted to specified density per Section 31 23 23.23. Verify subgrade elevations are correct and at proper grade to receive concrete paving. Subgrade shall be prepared as shown on the Drawings.
- B. Submit subgrade test results prior to placing concrete pavement.
- C. Verify Work of others affected has been completed and will not be adversely affected by paving operations. Verify that elevations of manhole and valve box castings in street or sidewalk are correct. Verify that curb depressions for sidewalks and driveways have been accommodated. Verify that drainage pattern matches storm water intake locations.

### **3.02 PREPARATION**

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Adjust valve boxes, curb stops, manhole castings, and other utility structures to grade; coat manhole, catch basin, or other frames with oil to prevent bond with concrete pavement.
- C. Notify Engineer minimum 24 hours prior to commencement of concrete delivery and placement.

### **3.03 FORM MATERIALS**

- A. Comply with ACI 301.
- B. Curb and gutter shape shall conform to the dimensions shown on the Drawings.
- C. Concrete curb shall be recessed for handicap ramps where sidewalks cross the street.
- D. Use approved flexible forms on all curves where the radius is less than 20 times the length of the form.
- E. In the event of rain, forms shall be removed and reset as may be necessary to comply with above requirements.
- F. Clean forms prior to placement. Place and secure forms to correct size, location, dimension, profile, and gradient for sidewalk, driveway, and roadway paving thickness shown on the Drawings and for curbs and gutters.
- G. Forms shall have a height equal to the edge thickness of the sidewalk or pavement slab. Assemble formwork to fully support loading exerted by concrete placement and finishing operations without deflection, displacement, or settlement and to permit easy stripping and dismantling without damaging concrete. Forms shall be well oiled on the contact faces. Use light commercial

oil or other suitable substance that will prevent adherence of the concrete to the forms and will not reduce the strength of the concrete.

- H. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required, to prevent leakage.
- I. Place no concrete until Engineer has approved subgrade and forms. Forms for paving shall be set to the proper alignment and grade for a distance equal to at least 3 hours paving time prior to Engineer approval.
- J. Moisten forms and subgrade immediately before placing concrete.
- K. Do not disturb or remove forms until the concrete has hardened sufficiently to permit removal with complete safety or unless otherwise approved by Engineer. Remove forms only during daylight hours and in a manner that avoids damage to pavement and curbs.

### 3.04 REINFORCING

#### A. Steel Reinforcement:

- 1. Comply with ACI 301 and placement shown on the Drawings. Reinforcement shall be clean and free of rust scale, shall be of the type, style, and dimensions shown on the Drawings.
- 2. Place reinforcement as shown on Drawings within a tolerance of plus or minus ½ inch.

### 3.05 PLACING CONCRETE

#### A. Preparation:

- 1. Place no concrete until subgrade preparation, forms, and reinforcement have been inspected and approved and until elevations of castings have been verified.
- 2. Before placing concrete, thoroughly clean forms, wash out with water, and make tight. Sweep and wash all adjacent sidewalks next to the pour, so as to eliminate contamination from remaining debris.
- 3. Concrete in streets, sidewalks, parking lot, etc. are to be of the thickness as indicated on the Drawings.
- 4. Deposit concrete in a manner to form a continuous, full-width mass requiring a minimum of rehandling and/or redistribution and to a sufficient depth to provide excess for finishing operations.
- 5. Do not dump or discharge concrete on or against a joint, reinforcement, insert, embedded part, or other assembly in a manner causing displacement or damage of the assembly.
- 6. Before new concrete is deposited upon or against concrete that has taken its initial set or has hardened, remove all encrustations from forms and reinforcement.

#### B. Method of Placing.

- 1. Do not place concrete outside of regular working hours, unless Engineer has been notified properly and is present.



2. Do not permit concrete to drop freely more than 6 feet. The concrete shall be placed in forms by means of a chute or hand shoveling.
3. Deposit concrete so that the surface is kept level throughout, a minimum being permitted to flow from one position to another, and place as rapidly as practicable after mixing.
4. Do not use in this Work any concrete not placed within 30 minutes after leaving the mixer.
5. If concrete placement is suspended for 30 minutes or less, cover the unfinished forward face of placed concrete with wet burlap until placement operations resume. When operations resume, break down forward face of placed concrete and thoroughly merge with fresh concrete. Continue consolidations and finishing operations on placed concrete throughout suspension period.
6. Do not break or interrupt successive pours such that cold joints occur. If the suspension of concrete placement exceeds 30 minutes, a standard head joint shall be constructed; provided, however, that no header joint will be permitted within a distance of 10 feet from any adjacent transverse joint.

C. Consolidating

1. Consolidate concrete by an approved mechanical vibrator using a uniform rate of forward progress as soon as possible after placement of concrete on subgrade. Vibrate only once thoroughly and uniformly consolidate concrete throughout its entire depth and width without damaging or displacing joint assemblies and reinforcing. Segregation of concrete or undesirable water gain in the upper pavement zone due to excessive vibration will not be permitted. Suspend vibration whenever the forward progress of the machine is interrupted. Hand-held vibratory equipment is not approved unless Contractor demonstrates that adequate manpower is dedicated to consolidation operations and Engineer approves Contractor's plan and manpower commitment in writing. Engineer may require the use of hand-held vibrators along the edge of existing pavement and curb. Suspend concrete paving if vibratory equipment failure occurs.
2. Thoroughly work concrete around reinforcements, and embedded fixtures, and into corners of forms during placing operations.

### 3.06 JOINTS

- A. Intervals, type, and dimensions shown on Drawings; firmly support rebar off subgrade with chairs. Where jointing plan is not shown, prepare and furnish jointing plan for review and approval of Engineer.
- B. Construct joints straight and at right angles to pavement surface. Where practical, all joints shall align with like joints in adjoining work. Use joints to outline all panels in sidewalks, making panels square insofar as possible. Maximum joint spacing in feet shall be 1.5 times pavement thickness in inches. Maximum length of panel shall be 1.5 times width.
- C. When placing concrete adjacent to existing working joints, Contractor shall use jointing techniques that will prevent random cracking of new pavement surfaces.

Techniques may include soft sawing, placing pre-molded strips, or other approved methods.

- D. After the curing period, joints to be dried and sand cleaned prior to installation of joint material; seal with hot pour or silicone material meeting requirements of the NDDOT "Standard Specifications for Road and Bridge Construction;" slightly underfill joints by approximately 1/8 inch and remove excess seal material immediately.
- E. Transverse joints: at right angles to pavement and north/south Parking Lot centerline:
  - 1. Match existing transverse joints.
  - 2. Saw cut 3/16 inch contraction joints to a depth of ¼ slab depth at optimum time after finishing to prevent formation of uncontrolled cracks due to contraction of slab;
  - 3. Provide construction joints as shown on Drawings and when concrete placement is suspended more than 30 minutes; no transverse construction joints shall be allowed between normal contraction joint locations; Contractor shall lay out joint locations to ensure that construction joints do not occur at prohibited locations.
- F. Longitudinal joints: parallel to pavement centerline and north/south Parking Lot centerline.
  - 1. Match existing longitudinal joints.
  - 2. Placed as shown on Drawings; saw cut 3/16 inch contraction joints to a depth of ¼ slab depth at optimum time after finishing to prevent formation of uncontrolled cracks due to contraction of slab.
  - 3. Construct longitudinal construction joints, if required, as shown on Drawings. The key shall be constructed by placing a deformed metal plate against the form when the first lane adjacent to the joint is placed. Remove this metal plate with the form. When placing the second slab, no concrete shall be left to overhang the lip formed on the first slab by the edging tool. Before placing the second slab, the entire edge of the first slab shall be sprayed with concrete form oil to completely break the bond between adjacent slabs.
- G. Isolation joints: use to separate thickened edge sidewalk from parking lot and adjacent curb and gutter. Joint shall be full depth of pavement and dimensions shown in Drawings; when extending full width of 5-foot wide or wider pavement, increase depth 2-inches.
  - 1. Sidewalk isolation joints; 5/8-inch wide and full slab thickness; premolded or poured material.

### 3.07 FINISHING

- A. When irregularities are discovered, they shall be corrected by adding or removing concrete. The pavement surface shall have no depression in which water will stand.
- B. Ensure that paving grade has a minimum slope of 0.4 percent.

- C. Street Pavement: Finish and texture street pavement transverse to pavement centerline so that finished elevations match existing street surfaces.
- D. Brooms shall be clean and free of dry or hardened mortar.
- E. Finishing Schedules:
  - 1. Driveways and Parking Lot: Surface shall be left slightly rough, with a uniformly tined finish. Streets shall be true to line and grade for existing concrete pavement street sections.
  - 2. Driveways and aprons: Light broom texture parallel to centerline of street and curb and gutter, true to line and grade. The surface shall be slightly rough but uniform.
  - 3. Sidewalks: Floated smooth and immediately after the water sheen disappears, broom lightly perpendicular to centerline followed by troweling joint edges. Use a clean broom at least 24 inches long and having three rows of bass, bassine, or coire fibers. Broom fibers shall be free of dry or hardened mortar from previous use. After final floating, apply the following finish:
    - a. Medium-to-Fine Textured Broom Finish: Finish for non-decorative concrete. Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
    - b. Medium-to-Coarse Textured Broom Finish: Finish for non-colored and colored scored concrete. Provide a coarse finish by striating float-finish concrete surface 1/16" to 1/8" deep with a stiff-bristled broom, perpendicular to line of traffic.
  - 4. Curb and gutters: light broom.
- F. Finishing Tolerances:
  - 1. The true plane of the surface shall not vary more than 1/4 of an inch in 10 feet, as determined by a 10 foot straightedge placed anywhere on the slab in any direction.
  - 2. Produce an initial surface which is relatively free from defects, but which still may show some trowel marks.
  - 3. Provide a finished surface essentially free from trowel marks, uniform in texture and appearance, and in a plane of tolerance specified.

### 3.08 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature curing, sun, wind, excessively hot or cold temperatures, travel, and mechanical injury. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- B. When removal of formwork occurs before concrete has totally cured, concrete shall be protected from premature drying by covering with polyethylene sheeting.
- C. Cure all horizontal surfaces with wet cure or polyethylene film.
- D. Cure concrete by covering all exposed surfaces immediately after finishing for at least 30 hours with curing paper or plastic curing blanket or by application of a

liquid-membrane curing-compound.

- E. When liquid membrane curing compound is used, apply at a rate of at least one gallon per 150 square feet in two equal applications 30 minutes apart. Protect joints to be sealed from entry of curing compound.
- F. The Contractor shall insure that the concrete has developed the necessary strength before forms are removed. Apply curing compound to exposed concrete after removal of forms.
- G. Promptly repair damaged curing compounds, paper, or blankets during the 30-hour curing period.
- H. Prevent the temperature of deposited concrete from falling below 50 degrees F. until at least 30 hours of curing has taken place. Engineer may, at his/her discretion, extend this curing time for cold weather operations.
- I. Power equipment shall not operate on a pavement slab until it has attained a modulus of rupture flexural strength of 550 psi. Engineer's written approval shall be required prior to equipment access onto pavement. In the event of damage to concrete resulting from the equipment or operations, suspend operation and correct damage. Contractor shall be responsible for any damage to pavement caused by his equipment or operations, regardless of Engineer's approval.
- J. New pavement shall not be opened for traffic until the joints have been sealed. New pavement may be opened to use by the general public vehicles when the concrete has attained a modulus of rupture flexural strength of 550 psi, provided pavement is in condition for safe use. Vehicular access limitations at colder temperatures will be extended at the Engineer's discretion; consult Engineer before allowing vehicle access.
- K. Clean up paving area.

### 3.09 DEFECTIVE CONCRETE

- A. The following concrete will be deemed to be defective, poor in quality standards, and shall be removed and replaced promptly from the job site at no additional expense to the Owner.
  - 1. All concrete which is not formed as indicated, is not true to intended alignment, is not plumb or level where as intended, is not true to intended grades and levels;
  - 2. Has voids, honeycombs, or spalling that have been cut, resurfaced, or filled, unless with the approval of the Engineer;
  - 3. Has uncontrolled cracks greater than 1/32 inch in width.
  - 4. Has sawdust, shaving, wood, dirt, rocks, or other embedded debris;
  - 5. The flow line surface of gutters not finished and shaped as necessary to eliminate low spots and entrapment of water;
  - 6. The top surface of the curbs, gutters, and curb radius shall be free from humps, sags, and other irregularities, shall be constructed to the elevations and widths shown in the Drawings and shall have edge

alignment as straight as practicable on tangent sections and of uniform curvature on curved sections;

7. Or does not conform fully to provisions of the contract documents.

B. Repairs and Replacements:

1. Where defective concrete is found after removal of the forms, cut it out, if necessary, and make the surfaces match adjacent surfaces.

### 3.10 FIELD QUALITY CONTROL

A. Section 01 45 00 - Quality Control: Field inspection and laboratory testing.

1. Perform field and laboratory testing by an independent testing laboratory appointed and paid for by the Contractor.

B. Perform one (1) field slump, one (1) air entrainment, two (2) 7-day and two (2) 28-day cylinder compression tests, and two (2) each 7-day and 28-day beam modulus of rupture tests for standard concrete in accordance with ACI 301 on the following schedule.

1. Minimum testing frequency shall be the greater number of tests determined by the following criteria: 1) Once per day of paving operation, 2) Once per city block of paving or fraction thereof, or 3) Once per 75 cubic yards or fraction thereof.

2. When ambient temperatures are below 45 degrees, one additional test cylinder shall be molded, cured on site under the same conditions as concrete it represents, and subsequently tested for 28-day compressive strength.

3. Notify testing laboratory to perform tests when testing is to be performed during construction.

C. Do not proceed with additional work until 7-day modulus of rupture results have been verified.

D. Provide computer generated batch tickets showing the weight of each component in the concrete mixture and the batching time with each batch of concrete delivered to the project. Contractor shall collect the batch ticket from each load delivered and shall deliver the batch tickets to the Engineer at the end of each day.

E. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature (3 times daily), and test samples taken.

F. If, during progress of Work, tests indicate that concrete paving materials do not meet specified requirements, remove defective Work, replace and retest. Contractor to pay all costs associated with defective pavement work.

### 3.11 WORKMANSHIP AND TOLERANCES

A. Flatness: Maximum variation of measured with a 10-foot straight edge shall be ¼ inch for pavement slabs and 1/8 inch for sidewalks.

B. Scheduled thickness: Within ¼ inch of specified thickness.

- C. Variation from true elevation: Within  $\frac{1}{4}$  inch.
- D. Transverse slope of surface course shall not vary from the slope shown on Drawings by more than plus or minus  $\frac{1}{4}$  inch in 12 feet.

3.12 SCHEDULE

- A. Sidewalks and Pedestrian Ways: 6-inches thick, or as shown in typical sections.
- B. Street and parking lot pavement: As shown in typical sections.
- C. Curb and Gutter: As shown in details.
- D. Patches and Repairs: Match existing concrete thickness.

**END OF SECTION**

**SECTION 32 13 15**  
**DETECTABLE WARNING SURFACE TILE**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Furnishing and installing regulatory-compliant cast iron Detectable Warning Plats.
- B. Related Work:
  - 1. Section 01 45 00 - Quality Control
  - 2. Section 32 13 13 - Concrete Pavement

1.02 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 - Submittals.
- B. Product Data: Submit manufacturer's literature describing products, installation procedures and routine maintenance.
- C. Shop drawings are required for products specified showing details; plans of placement including joints, and material to be used as well as outlining installation materials and procedure.
- D. Material Test Reports: Submit test reports from qualified independent testing laboratory indicating that materials proposed for use are in compliance with requirements and meet the properties indicated. All test reports shall be conducted on a cast-in-place tactile tile system as certified by a qualified independent testing laboratory.
- E. Maintenance Instructions: Submit copies of manufacturer's specified maintenance practices for each type of tactile tile and accessory as required.

1.03 QUALITY ASSURANCE

- A. Provide cast-in-place tactile tiles and accessories as produced by a single manufacturer.
- B. Installer's Qualifications: Engage an experienced Installer certified in writing by tactile manufacturer as qualified for installation, who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.
- C. Americans with Disabilities Act (ADA): Provide tactile warning surfaces which comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title 49 CFR TRANSPORTATION, Part 37.9 STANDARDS FOR ACCESSIBLE TRANSPORTATION FACILITIES, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES.

#### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy wrappings and tile type shall be identified by part number.
- B. Tiles shall be delivered to location at building site for storage prior to installation.

#### 1.05 SITE CONDITIONS

- A. Environmental Conditions and Protection: Maintain minimum temperature of 40 degrees F in spaces to receive tactile tiles for at least 48 hours prior to installations, during installation, and for not less than 48 hours after installation. Store tactile tile material in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 40 degrees F in areas where work is completed.
- B. The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the passengers or public. Provide barricades or screens to protect passengers or public.
- C. Disposal of any liquids or other materials of possible contamination shall be made in accordance with federal state and local laws and ordinances.
- D. Cleaning materials shall have code acceptable low VOC solvent content and low flammability if used on the site.

#### 1.06 EXTRA STOCK

- A. Deliver extra stock to storage area designated by Engineer. Furnish new materials from same manufactured lot as materials installed and enclose in protective packaging with appropriate identification for cast-in-place tactile tiles. Furnish not less than two (2) percent of the supplied materials for each type, color, and pattern installed.

#### 1.07 GUARANTEE

- A. Cast-in-place tactile tiles shall be guaranteed in writing for a period of five (5) years from date of final completion. The guarantee includes defective work, breakage, deformation, and loosening of tiles.

### **PART 2 PRODUCTS**

#### 2.01 MATERIAL

- A. The Detectable Warning Panel shall be cast iron for application in concrete curb ramps. Cast Iron Plates shall be factory coated black or corrosion steel.

#### 2.02 MANUFACTURERS

- A. Acceptable Manufacturers:
  - 1. Neenah Foundry Company



2. Approved Equal.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. During tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- B. Contractor shall furnish and place tile in accordance with manufacturer's recommendations and instructions.
- C. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement.
- D. The truncated domes shall be placed in concrete and shall be pressed firmly into the concrete to the point that concrete fills the vent holes on the truncated dome plates.
- E. No cutting of truncated domes will be allowed unless approved by the Engineer. No more than one cut dome per pedestrian ramp is allowed and any cut sections used shall not be less than 2 SF of surface area. All cut edges shall be ground to a smooth surface leaving no sharp edges or burrs. If using coated color domes they shall not be cut.
- F. Any swelling of the concrete that occurs around the truncated domes must be screeded off and the surrounding concrete shall be finished flush with the truncated dome plate edge. The finished installation of the truncated domes plates and the ramp surface plane shall have no surface deviations over 3/16 inches. To ensure that the truncated domes are well seated in concrete, the Contractor should provide a 3 inch minimum border around the edges of the truncated domes.
- G. Immediately after tile placement, the tile elevation is to be checked to adjacent concrete. The tile elevation and slope should be set consistent with contract drawings to permit water drainage.

#### **3.02 CLEANING AND PROTECTING**

- A. Protect placed tile until it has set completely.
- B. Protect tiles against damage during construction period to comply with tactile tile manufacturer's specification.
- C. Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.

- D. Clean tactile tiles not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project.  
Clean tactile tile by method specified by tactile tile manufacturer.

**END OF SECTION**

**SECTION 32 17 23**  
**TRAFFIC CONTROL MARKINGS**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section Includes:
  - 1. Traffic Control Pavement Markings.
  - 2. Permanent Pavement Markings.
  - 3. Other Informational Markings.
- B. Related Sections:
  - 1. Section 01 33 00 – Submittals.
  - 2. Section 32 12 16 – Asphalt Paving.
  - 3. Section 32 13 13 – Concrete Pavement.

1.02 REFERENCES

- A. Manual on Uniform Traffic Control Devices (MUTCD), latest edition.
- B. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, latest edition.

1.03 SUBMITTALS

- A. Product Data: Catalog cuts and manufacturer's performance data for traffic control marking and symbols.

1.04 EXISTING CONDITIONS

- A. Inspection:
  - 1. Examine area for conditions under which Work is to be performed. Report in writing to Engineer all conditions contrary to those shown on the drawings or specified herein and all other conditions that will effect satisfactory execution of work, such as improperly constructed substrates or adjoining work. Do not proceed with Work until unsatisfactory conditions have been corrected.
  - 2. Starting Work constitutes acceptance of the conditions under which Work is to be performed. After such acceptance, Contractor shall at his expense, be responsible for correcting all unsatisfactory and defective work resulting from such unsatisfactory conditions.

**PART 2 PRODUCTS**

2.01 MATERIALS FOR TRAFFIC CONTROL MARKINGS

- A. Paint: Yellow, white, red, and blue NDDOT high build latex, traffic paint to meet NDDOT Specification Section 880, water-based pavement marking paint.
- B. Glass Beads: Glass Beads meeting AASHTO M247, Type I, modified to require 80 percent true spheres and moisture resistant treatment, to meet NDDOT

Specification Section 880.

- C. Apply lines and symbols to all pavement, as shown on the drawings.

### **PART 3 EXECUTION**

#### **3.01 PAVEMENT MARKING REMOVAL**

- A. Remove conflicting existing pavement markings, temporary markings, or markings put down by error as directed by Engineer.
- B. Eradication to be by high pressure water/sand slurry mixture, weather permitting. No grinding of pavement shall be allowed unless approved by the Engineer.

#### **3.02 PREPARATION**

- A. Record detailed dimensions of existing pavement markings prior to milling, overlay, or seal coat.
- B. Remove all dirt, oil, grease, and other foreign material from areas of pavement to be marked. Contractor is responsible for all preparation and layout.
- C. Apply paint only on thoroughly dry surfaces when atmospheric temperature is above 40 degree Fahrenheit and when weather is favorable.

#### **3.03 INSTALLATION OF TRAFFIC CONTROL PAVEMENT MARKINGS**

- A. Apply respective markings in colors as indicated and sizes and dimensions as indicated, or match existing colors and markings.
- B. Contractor shall replace and/or restore all pavement markings after temporary patching or Work has removed such markings.
- C. Contractor shall maintain pavement markings as required during all phases of construction.
- D. Apply painted permanent pavement markings with a maximum coverage rate of 100 square feet per gallon with a 0.015 inch minimum film thickness on bituminous and concrete paved areas, and 0.020 inch minimum film thickness on seal coated areas.
- E. Apply paint with atomizing spray type striping machine. Markings shall have clear-cut edges, true and smooth alignment, and uniform thickness. Do not permit traffic on pavement until markings are thoroughly dry. Other pavement markings shall be painted with the standard templates in an appropriate proportion.
- F. Apply respective markings in colors as indicated and sizes, locations, and dimensions as follows:
- G. All parking stalls to be marked with 4" wide striping, color as indicated on Drawings.
- H. Crosswalk markings shall be as indicated on Drawings.

- I. Pavement arrows, lettering, and symbol dimensions shall conform to MUTCD Standards.
- J. All handicapped parking stalls shall be marked with striping and symbols in accordance with City and ADA Standards. Handicapped stalls to include both van accessible and non-van accessible. Locations as directed by Owner, or as shown on the drawings. Color shall be blue.
- K. Contractor shall be responsible to replace and/or restore all pavement markings after temporary patching or other Work has removed such markings.

**END OF SECTION**

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**SECTION 32 17 24**  
**SITE SIGNAGE**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Furnishing and installation of all site regulatory and informational signage to include those identified on the plans.

1.02 RELATED WORK

- A. Section 32 17 23 – Traffic Control Markings.

1.03 REFERENCES

- A. North Dakota Department of Transportation Standard Specification for Road and Bridge Construction, latest edition.

1.04 SUBMITTALS

- A. Submittals required:
  - 1. Shop drawings on all signs, illustrating types of signs, messages and mounting.

1.05 REGULATORY REQUIREMENTS

- A. Conform to all applicable City, State, and Federal Standards for signing.

**PART 2 PRODUCTS**

2.01 SIGN BASE MATERIAL

- A. Sign base material for sign panels shall be sheet aluminum conforming to the material requirements of NDDOT Section 894.01A1.

2.02 SIGN FACE MATERIAL

- A. Sign face material for sign panels shall be high intensity reflective sheeting conforming to the material requirements of NDDOT Section 894.02.
- B. The colors of the panels are indicated on the Sign Schedule and shall conform to requirements of the FHWA and conform to the Color Tolerance Charts provided by the FHWA.

2.03 STANDARD CONSTRUCTION AND REGULATORY SIGNS

- A. Standard regulatory signs shall meet the requirements of the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).

2.04 FABRICATION

- A. Fabricate signs to comply with sign details and approved shop drawings, and conforming to the requirements of NDDOT Section 894.
- B. Allow for thermal expansion and contraction associated with exterior installation.

- C. Signposts and Hardware: Steel galvanized square perforated telescoping tubular posts shall conform to NDDOT Section 894.05.

#### 2.05 POSTS AND HARDWARE FOR SIGNS

- A. The Contractor shall fabricate and install steel sign posts for all signs per NDDOT Section 894.05 and the details in the Drawings. Materials shall include the sign post, anchor, sleeve plates, shims, bolts, washers and other miscellaneous hardware required to provide a complete installation.

### **PART 3 EXECUTION**

#### 3.01 INSTALLATION

- A. Install signs without waves, warps, buckles, or fastening stress.
- B. Install signs straight and level. Balance signs as required. Install posts plumb.
- C. Install signs and posts in accordance with details in the drawings.
- D. Install signs to cast-in-place concrete columns or walls with at least four 3/8" lag screws and 1/4" neoprene pad washers. Provide all hardware as required.

**END OF SECTION**



**SECTION 32 91 19**  
**LANDSCAPE GRADING**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Topsoil placement.
- B. Finish grading.

1.02 RELATED REQUIREMENTS

- A. Section 31 11 00 - .
- B. Section 31 22 00 - Grading.
- C. Section 31 23 16 - Excavation.
- D. Section 31 23 23.23 - Backfilling.
- E. Section 32 92 19 - Seeding.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1910.266 - Logging Operations; Current Edition.
- B. ASTM D5268 - Standard Specification for Topsoil Used for Landscaping and Construction Purposes; 2023.

1.04 SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.
- B. Field Quality Control Submittals: Topsoil depth measurements.

1.05 FIELD CONDITIONS

- A. Place topsoil during dry weather.
- B. Ambient Conditions: Terminate work during hazardous environmental conditions in accordance with 29 CFR 1910.266.
- C. Existing Conditions: See site drawings.

**PART 2 PRODUCTS**

2.01 MATERIALS

- A. Topsoil: Salvaged or imported, modified as necessary to meet specification Section 32 93 00.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify grading and intended elevations are as indicated on drawings.

- B. Verify absence of standing or ponding water.

### 3.02 PREPARATION

- A. Protect site features to remain, including bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs.
- B. Protect trees, plants, lawns, rock outcroppings, and other features to remain.
- C. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size.
- D. Scarify surface to depth of 3 inches (75 mm).

### 3.03 TOPSOIL PLACEMENT

- A. Uniformly distribute and spread topsoil.
- B. Place topsoil in areas where seeding, sodding, and planting as indicated on drawings.
- C. Place topsoil to the following compacted thicknesses:
  - 1. Areas Indicated Seeded with Grass: 6 inches (150 mm).
  - 2. Areas Indicated as Sodded: 4 inches (100 mm).
  - 3. Shrub Beds: 18 inches (450 mm).
  - 4. Flower Beds: 12 inches (300 mm).
- D. Rake until smooth and level.
- E. Place topsoil during dry weather and on dry unfrozen subgrade.
- F. Manually spread topsoil close to plant life and buildings to prevent damage.

### 3.04 FINISH GRADING

- A. Maintain profiles and contour of subgrade.
- B. Remove roots, weeds, rocks, and foreign material while spreading.
- C. Maintain uniform topsoil thickness.
- D. Lightly compact placed topsoil.
- E. Maintain stability of topsoil during inclement weather. Replace eroded topsoil.

### 3.05 TOLERANCES

- A. Topsoil Thickness: 1/2 inch (13 mm) plus/minus.

### 3.06 CLEANING

- A. See Section 01 77 00 Contract Closeout for additional requirements.
- B. Remove unused topsoil. Grade stockpile area to prevent standing water.

### 3.07 PROTECTION

- A. Protect from stormwater runoff and subsequent construction operations.
- B. Protect existing structures, fences, sidewalks, utilities, paving, and curbs.

C. Do not permit traffic until established.

**END OF SECTION**

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**SECTION 32 92 19**  
**SEEDING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. Preparation of subsoil.
  - 2. Placing topsoil.
  - 3. Seeding, mulching and fertilizer.
  - 4. Maintenance.
- B. Related Sections include:
  - 1. Section 31 11 00 - Clearing and Grubbing
  - 2. Section 31 23 16 - Excavation
  - 3. Section 31 23 23.23 Backfilling
  - 4. Section 31 25 00 - Erosion and Sedimentation Controls
  - 5. Section 32 05 50 - Restoration of Disturbed Areas

1.02 REFERENCE STANDARDS

- A. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, latest edition.
  - 1. Any measurement and payment provisions of reference standards do not apply to this project unless explicitly stated so within these specifications.

1.03 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Topsoil Borrow: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments to become homogeneously blending mineral soil. This topsoil is used for all turf areas.
- C. Subsoil: All soil beneath the topsoil sayer of the soil profile, and typified by the lack of organic matter and soil organisms.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing topsoil.

1.04 SUBMITTALS

- A. See Section 01 33 00 - Submittals
- B. Product Data: for each type of product indicated.
  - 1. Herbicides: Include product label and manufactureer's application instructions specific to this project.
- C. Grass Seed Mix: Proprietary seed mix as follows:
  - 1. Products: Subject to compliance with requirements, provide Seed Mixes Specified in Part 2.

- 2. Substitutions must be approved in writing by Engineer 15 calendar days prior to installation.
  - 3. Provide written substitution request a minimum of 20 calendar days prior to anticipated installation. Failure to comply with this requirement may be ground for rejection of the seeding installation.
- D. Product Certificates: For fertilizers from manufacturer
- 1.05 REGULATORY REQUIREMENTS
- A. Comply with regulatory agencies for fertilizer and herbicide composition.
- 1.06 DELIVERY, STORAGE, AND HANDLING
- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- 1.07 PROJECT CONDITIONS
- A. Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
- 1. Spring Planting: April 1 through May 15, inclusive.
  - 2. Fall Planting: August 1 through September 15, inclusive.
- B. Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

## **PART 2 PRODUCTS**

### 2.01 SEED MIXTURE

- A. Seed shall meet or exceed the following pure live seed requirements:
- B.
- C. Seed delivered in tagged and labeled bags showing percentage of purity and germination. Seed shall have a minimum of 80 percent germination rate and maximum inert matter and other seeds of 4 percent. Maximum weed seed shall be 0.5 percent.
- D. Seed shall be tested within six months prior to date of seeding and conform to latest seed laws of the State of North Dakota. A certified test report shall be submitted to the Engineer at least 21 days before seeding begins.
- E. Origin of native grasses shall be limited to: North Dakota, South Dakota, Western Minnesota, and Eastern Montana.

- F. Seed that is wet, moldy, or damaged will not be accepted.
- G. For Engineer's field review, each bag of seed delivered to the Project shall bear a tag which shows the following information:
  - 1. Name and address of supplier.
  - 2. Supplier's lot number for each kind of seed mixture.
  - 3. Origin (where grown) for each kind of seed.
  - 4. Purity and germination for each kind of seed.
  - 5. Date of latest test.
  - 6. Pounds of bulk seed of each kind of seed in each bag.
  - 7. Total pounds of bulk seed mixture in each bag.
  - 8. Pounds of pure live seed of each kind of seed in each bag.
  - 9. Total pounds of pure live seed mixture in each bag.

## 2.02 FERTILIZERS

- A. FS O-F-241; recommended for grass, with 50 percent of the elements derived from organic sources to the following proportions; nitrogen 20 percent, phosphoric acid 20 percent, soluble potash 10 percent.
- B. Fertilizer shall be applied at a rate of 20 pounds per acre to all seeded areas.

## 2.03 MULCH

- A. Mulch shall consist of a wood cellulose fiber that has not been treated with any germination or growth inhibitive substances. The mulch shall be treated with a tackifier to enhance seed and mulch placement and adherence to the soil. The mulch shall be free of contamination from noxious weed seed and seed from competitive plants.

## 2.04 BONDED FIBER MATRIX

- A. Bonded fiber matrix mulch with the following characteristics:
  - 1. Materials: Wood fiber, Polysaccharide crosslinked hydro-colloid polymer tackifier.
  - 2. pH Range: 4.8 plus or minus 2.
  - 3. Moisture Content: 12+-3% percent maximum.
  - 4. Wood Fiber Content: 90 percent maximum.
  - 5. Polysaccharide Crosslinked Hydro-colloid Polymer Tackifier: 10+-1%
  - 6. Organic Content: 99 percent, plus or minus 1.
  - 7. Ash Content: 1 percent, plus or minus 1.
  - 8. Water Holding Capacity: 1,350 percent minimum.
  - 9. Fiber Mulch Slurry Viscosity: Minimum 2.85 cps (Test Method: Falling Ball Viscometer) Test condition 1500 lbs of fiber mulch per 3000 gallons of water, evaluated immediately after mixing.

## 2.05 EQUIPMENT

- A. Equipment shall be hydraulic and capable of uniformly mixing the specified seed in water for uniform distribution. The mulch may be applied simultaneously with

the seed and fertilizer, or within 24-hours after application of seed and fertilizer.

#### 2.06 HERBICIDE

- A. Herbicide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted herbicides unless authorized in writing by authorities having jurisdiction.

#### 2.07 SOIL MATERIALS

- A. Topsoil: Excavated from site or imported, stockpiled, free of weeds. See specification 31 23 24 – Soil Materials

### **PART 3 EXECUTION**

#### 3.01 GENERAL

- A. All means methods to comply with NDDOT Standard Specifications for Road and Bridge Construction, latest edition.

#### 3.02 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within planting area.
  - 2. Do not mix or place soil amendments in frozen, wet, or muddy conditions.
  - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Engineer.

#### 3.03 PREPARATION

- A. In areas which have been disturbed and need to be seeded, fine grade to smooth, even surface with loose, uniformly fine texture. Roll, rake and drag lawn areas, remove ridges and fill depressions as required to meet finish grades.
- B. In areas which have not been disturbed and need to be seeded, till the soil to a depth of 6 inches soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.



### 3.04 FERTILIZING

- A. Apply at one (1) pound of actual phosphoric acid (P20) per thousand (1000) square feet.
  - 1. Apply by mixing or dragging into surface one and one-half inch (1 1/2") of topsoil immediately before seeding.
- B. Fertilizer shall be applied within 48 hours of seeding.
- C. Lightly water to aid the dissipation of fertilizer.

### 3.05 SEEDING

- A. Apply Turf grass seed at a rate of 6 lbs/1000 square feet evenly with hydro-mulch. The mulch shall be uniformly applied at a rate of one ton per acre. The mulch shall permit percolation of water to the underlying soil. Coverage shall be a minimum of 95%.
- B. Application rate will vary based on seed type. See NDDOT Seeding Manual for seeding application rate (pounds/Acre).

### 3.06 PROTECTION

- A. Identify seeded areas with stakes and string around area periphery. Set string height to 42 inches.
  - 1. Space wooden stakes at 40 feet on center, install more if steep or uneven ground exist.

### 3.07 MAINTENANCE

- 1. Provide maintenance of seeded areas after seeding and extending for 30 calendar days from date of substantial completion planting, excluding the period from October 15 to April 15.
- 2. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition.
- B. The soil shall be kept moist with light frequent watering until lawn is established.
  - 1. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.
- C. Immediately reseed areas that show bare spots.
- D. Protect seeded areas with warning signs during maintenance period.

### 3.08 CLEAN-UP & ACCEPTANCE

- A. Protect adjoining pavements, walks, structures from dirt and staining during completion of work.
  - 1. Removal of such dirt and staining is required.
- B. Leave site free of debris from this Section of Work.

- C. Protect completed seeded areas from any damage until project is accepted by Owner.
  - 1. All ground areas disturbed as a result of planting operations shall be restored to their original condition or to the desired new appearance.

3.09 SCHEDULE

- A. Seed all disturbed areas, including staging areas, areas affected by stockpiles, drainage swales, and areas of new fill and backfill, and areas of removed pavements and hardscapes.
- B. Area not required to be seeded includes areas of established turf grass growth, hardscapes or landscapes scheduled to remain.

**END OF SECTION**

**SECTION 32 93 00**  
**PLANTS**

**PART 1 GENERAL**

1.01 NOT USED

**PART 2 PRODUCTS**

2.01 PLANTS

- A. Plants: Species and size identified in plant schedule, grown in climatic conditions similar to those in locality of the work.

**PART 3 EXECUTION**

3.01 NOT USED

**END OF SECTION**

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# **DIVISION 33 UTILITIES**



**SECTION 33 05 97.16**  
**MARKERS FOR UTILITY IDENTIFICATION**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
  - 1. GPS Mapping.
  - 2. Tracer Wire.
  - 3. Tracer Wire Access Box.
- B. Related Sections include, but are not limited to:
  - 1. Section 01 33 00 – Submittals.
  - 2. Section 31 23 16.13 – Trenching.
  - 3. Section 33 11 16 – Site Water Lines.

1.02 REFERENCE STANDARDS

- A. Reference Standards include but are not limited to:
  - 1. North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction, Latest Edition.
    - a. Any references to NDDOT Specifications will not include any references to measurement or payment procedures unless otherwise noted in this specification

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Shop Drawings: Submit manufacturer's data on materials furnished indicating compliance with the specifications.
  - 1. Tracer wire must meet requirements as per North Dakota Rural Water Systems Association Sewer/Water Utility - Tracer Wire Specification, Latest Edition.

**PART 2 PRODUCTS**

2.01 MATERIALS

Pipeline	Warning Notice	Color
Sanitary Sewer	Caution Buried Sewer Line Below	Green
Storm Sewer	Caution Buried Storm Drain Below	Green
Potable Water Main	Caution Water Line Buried Below	Blue
Electric	Caution Electric Line Buried Below	Red

Gas	Caution Gas Line Buried Below	Yellow
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- A. Tracer Wire Systems:
  - 1. Tracer wire shall meet or exceed the requirements of the City of Otsego Engineering Manual for all wire and connectors, applicable by method of install and as supplemented herein.
  - 2. Direct bury tracer wire shall be minimum #12 AWG Copper Clad Steel wire or minimum #12 AWG solid Copper wire with minimum 450 lb. break load, with 30 mil high molecular weight polyethylene insulation, as per Otsego Engineering Manual.
- B. Tracer Wire Access Box:
  - 1. Refer to Otsego Engineering Manual for part number of necessary access box.
  - 2. Tracer wires shall terminate at each end in a flush mounted access box.
  - 3. Access box shall have a cast iron lid that can be locked and opened with a standard pentagon head key wrench.
  - 4. Tracer wires shall be stripped and attached to stainless steel screws mounted to the underside of the lid.
  - 5. Sufficient slack shall be left in the wire length so cover can be lifted with wire intact.
  - 6. Tracer wire access box shall be located directly in front of fire hydrants or where indicated on drawings and be set to grade.
  - 7. Tracer wire box shall be Valvco TWAB or approved equal.

**PART 3 EXECUTION**

2.01 GPS MAPPING

- A. All piping and fittings shall be mapped using GPS after final locations have been determined and prior to backfilling. GPS shall provide horizontal and vertical control.
- B. GPS points shall be recorded at minimum at the following locations:
  - 1. Along all piping lengths at a distance not to exceed 100 feet between points.
  - 2. All points where a pipe experiences a change in direction. If a pipe is installed in a bent fashion the number of GPS points taken shall be sufficient to accurately determine the location of the pipe through the bend.
  - 3. All fittings such as elbow, tees, etc., shall be mapped.
  - 4. Pipe terminals – beginnings and endings.
- C. Saving of GPS data shall be confirmed prior to backfilling. GPS mapping data shall be submitted to the Engineer in an organized manner.

**END OF SECTION**



**SECTION 33 11 13**  
**PUBLIC WATER UTILITY DISTRIBUTION PIPING**

**PART 1 GENERAL**

1.01 SUMMARY

- A. This section includes:
1. Piping Materials and Fittings.
  2. Pipe Installation.
  3. Appurtenances.
  4. Reaction Backing (Thrust Blocking)
  5. Pipe Thrust Restraint.
- B. Related Sections include, but are not limited to:
1. Section 01 33 00 - Submittals.
  2. Section 01 39 00 - Coordination and Meetings.
  3. Section 01 45 00 – Quality Control.
  4. Section 01 60 00 - Material and Equipment.
  5. Section 31 23 24 – Soil Materials.
  6. Section 31 23 16.13 - Trenching.
  7. Section 31 23 23.23 – Backfilling.
  8. Section 33 13 00 – Disinfection of Water Systems.

1.02 REFERENCE STANDARDS

- A. Reference standards include, but are not limited to:
1. ASTM A536 – Standard Specification for Ductile Iron Castings; 1984 (Edited 2019).
  2. ASTM D3139 – Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals; 2019.
  3. ASTM D1784 – Standard Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds; 2020.
  4. ASTM D1785 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2021.
  5. ASTM D2241 – Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series); 2020.
  6. ASTM D2466 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2023.
  7. ASTM D3212 – Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals; 2021.
  8. ASTM F477 – Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014.
  9. AWWA C111/A21.11 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; 2017.
  10. AWWA C153/A21.53 – Ductile-Iron Compact Fittings; 2019.
  11. AWWA C509 – Resilient-Seated Gate Valves for Water Supply Service; 2023.

12. AWWA C550 – Protective Interior Coatings for Valves and Hydrants; 2017.
13. AWWA C605 – Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings; 2021.
14. AWWA C900 – Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm); 2022.
15. AWWA C907 – Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm); 2023.
16. NSF 14 – Plastics Piping System Components and Related Materials; 2022.
17. NSF 60/600 – Drinking Water Treatment Chemicals - Health Effects; 2021 (Addendum 2023).
18. NSF 61/600 – Drinking Water System Components - Health Effects; 2023.
19. WW-T-779c - Federal Specifications

### 1.03 SUBMITTALS

- A. Submit in accordance with Section 01 33 00 – Submittals.
- B. Provide product data on pipe materials, pipe fittings, valves and accessories.
- C. Submit information for all pipe, fittings, valves and accessories indicating:
  1. Name of Manufacturer.
  2. Materials.
  3. Standard Dimensions.
  4. References.
  5. Joint Data.
  6. Maximum Loadings.
  7. Thrust Restraints.
- D. Submit line layout, laying schedule, and marking diagrams which indicate the specific number of each fitting and the location and the direction of each fitting in the completed line. In addition, the line layouts shall include:
  1. Pipe station and invert elevation at all changes in grade or horizontal alignment
  2. All elements of curves and bends, both in horizontal and vertical alignment.
  3. The limits of each reach of restrained joints.
- E. Provide a list of materials and corresponding suppliers.
- F. Submit Affidavit of Compliance certifying that materials furnished have been tested and are in compliance with specification requirements.
  1. Submit design calculations for structural design of pipe thickness where pipe class or thickness is not specifically called out.
- G. Manufacturer’s Instructions: For valves, hydrants, and specialties, furnish in accordance with Section 01 60 00 – Material and Equipment and Section 01 77

00 – Contract Closeout manufacturer’s printed instruction for delivery, handling, storage, assembly, installation, adjustment, special tool requirements, and maintenance requirements.

- H. In accordance with Section 01 77 00 – Contract Closeout, provide records of measured depths of water mains, service leads, valves, connections, transition couplings, adapters, thrust blocking; measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements; measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work; field changes of dimension and detail.

#### 1.04 MANUFACTURER'S CERTIFICATES AND REPORTS

- A. Manufacturer Pipe Certifications:
  - 1. Signed by the pipe manufacturer certifying that the pipe complies with requirements specified in the specifications and is suitable for installation based on the proposed bedding and backfilling specifications.

#### 1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with Section 01 45 00 – Quality Control.
- B. Valves and Hydrants: Manufacturer's name and pressure rating marked on valve and hydrant body.
- C. Source Quality Control: Pipe shall be clearly marked with pipe size, class, type, test pressure and manufacturer’s name.

#### 1.06 FIELD MEASUREMENTS

- A. The Drawings indicate required pipe sizes and the general arrangement for major piping. Locations shall be verified in the field by the Contractor. Valves, fittings, and appurtenances shall be of such dimensions to allow for the installation of this piping substantially as shown on the Drawings. In the event it should become necessary to change the location of any of the work due to interference with other work, Contractor shall consult with the Engineer prior to making any changes and all such changes shall be made at no additional cost to the Owner.
- B. Prior to roughing in any facilities or installation of piping and equipment, consult all related drawings including general, mechanical, electrical, etc., and inform self of materials, locations of structures, pipes, duct banks, electrical conduits, etc., which may impact the installation.
- C. Discrepancies discovered before or after work has started, shall be brought to the attention of the Engineer immediately, and the Engineer reserves the right to require minor changes in the work to eliminate such discrepancies.
- D. Pipe connections to equipment shall be subject to approval of Engineer and coordinated to meet the manufacturer’s recommendations and requirements.

E. No work that connects directly to equipment shall be installed before complete shop drawings of said equipment have been reviewed and approved by the Engineer.

1) Restrained joints shall consist of approved mechanical restrained or push-on restrained joints.

#### 1.07 PROJECT CONDITIONS

A. Verify all dimensions of and between existing structures and locations of existing piping and equipment required for the proper installation of all-new piping and equipment.

B. Contractor shall be responsible for verification of location of all existing piping and structures. Potholing and or excavation to expose existing piping, conduits, etc. may be required prior to installation of new piping or connection to existing piping. Adjustments to the locations of new piping may be required due to locations of existing piping and sequencing of construction that will be required. Adjustments required shall be at no additional cost to the Owner.

#### 1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivered materials shall be stockpiled and stored at locations approved by the Owner until required for installation. Materials shall be transported, delivered, stored, and handled in accordance with Manufacturer's instructions and the requirements of Section 01 60 00 – Material and Equipment.

B. Contractor shall inspect materials upon delivery for loss or damage in transit. Contractor shall be responsible for the replacement of damaged materials; damaged materials shall be removed from the Site.

#### 1.09 REGULATORY REQUIREMENTS

A. All products that may come into contact with water intended for use in a public water system shall meet American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standards 60/600 and 61/600, as appropriate. A product will be considered as meeting these standards if so certified by NSF, the Underwriters Laboratories, or other organization accredited by ANSI to test and certify each product.

### **PART 2 PRODUCTS**

#### 2.01 POLYVINYL CHLORIDE (PVC) PIPE

A. The PVC pipe and fittings furnished shall be of the type as specified using the City Engineer's Association of Minnesota (CEAM) specifications. Section 2611.2 paragraph A2.

B. Water Main / Force Main Piping / Gravity Piping (4-24 inches in diameter):

1. As specified in the piping schedule presented in the Construction Drawings.

2. PVC pipe in sizes 4-24 inches in diameter shall conform to all applicable requirements of AWWA C900 and AWWA C909 as applicable or indicated in the drawings. Pipe utilized for water main shall be NSF certified for use in the transport of potable water.
  3. The pipe shall meet cast iron pipe equivalent outside diameters. The pipe shall be minimum Class 165, DR-25 as indicated on Construction Drawings and the Piping Schedule. The pipe shall meet the requirements of Table 2 of AWWA C900 and AWWA C909 as applicable.
  4. The manufacturer of each shipment of pipe may be required to supply a statement certifying that each lot or load of pipe has been subjected to the appropriate testing for PVC pipe meeting the requirements of AWWA C900 and AWWA C909 as applicable.
  5. Fittings shall be mechanical joint ductile iron fittings meeting the requirements of AWWA C110/A21.10 or AWWA C153/A21.53 rated at 350 psi. Gaskets shall conform to the requirements of AWWA C111/A21.11 and the cement lining shall conform to the requirements of AWWA C104/A21.4.
    - a. Transition gaskets shall be supplied for installation of standard ductile iron fittings from IPS or CI to C900 size.
  6. All joints shall be integral, bell and spigot gasketed joints, or plain end with rubber ring couplings. When the spigot end is to be inserted into a mechanical joint fitting, the beveled end of the pipe shall be removed prior to insertion. Installation procedures shall conform to AWWA C605.
    - a. Gaskets and lubricants shall be made from materials that are compatible with the plastic material and with each other when used together. They shall not support the growth of bacteria and for water main shall not adversely affect the potable water that is to be transported. Gaskets shall meet the requirements of ASTM F477.
    - b. Restrained Joints:
      - 1) Joint restraint systems shall be suitable for PVC pipe.
      - 2) Approved Manufacturers:
        - (a) EBBA Iron, Inc. Series 1500 Bell Restraint Harness.
        - (b) Megalug Series 2000PV.
        - (c) Or Approved Equivalent.
- C. See Section 33 05 97.16 – Markers for Utility Identification requirements.
- D. Pipe, fittings, and valves shall be installed in compliance with manufacturer's recommendations and in accordance with ASTM D2467.

## 2.02 HIGH-DENSITY POLYETHYLENE (HDPE) PIPE

- A. Approved Manufacturers:
  1. J-M Manufacturing Company, Inc.
  2. Sclalrpipe.
  3. Or Approved Equivalent.
- B. Materials:

1. All HDPE water pipe shall be solid wall manufactured of PE4710 resin conforming to ASTM D3350 with a cell classification of 445574C/E and shall be a Plastic Pipe Institute TR4 listed compound and in accordance with one of the following standard specifications:
  - a. AWWA C906/ASTM F714

C. Joints:

1. PE pipe shall be extruded in accordance with ASTM D1238 with plain ends.
2. The ends shall be square to the pipe and free of any bevel or chamfer.
3. There shall be no bell or gasket of any kind incorporated into the pipe.
4. HDPE shall be joined by the method of thermal butt fusion as outlined in ASTM F2620 - "Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings" or electro-fusion as outlined in ASTM F1055 - "Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing".
5. Pipe or fittings may be joined only by technicians who have been trained and qualified in the use of the equipment.

D. Minimum Pressure Class: All HDPE pipe shall have the following minimum pressure class (PC) or pressure rating (PR) or as indicated on the Drawings and elsewhere in this specification:

1. AWWA C906/PE 4710: DR-11 PR 200 psi.
2. Pipe shall conform to Ductile Iron Pipe Size (DIPS)

## 2.03 DUCTILE IRON FITTINGS

A. Fittings

1. Fittings furnished shall be compliant with the City Engineer's Association of Minnesota (CEAM) specifications. Outlined in section 2611.2
2. Fittings shall be in accordance with AWWA/ANSI C110/A21.10, AWWA/ANSI C153/A21.53.
3. Fittings for potable water service shall meet requirements of NSF 61/600.
4. Fittings at a minimum shall meet or exceed the pressure classes of the pipe which the fitting is connected, unless specifically indicated on the drawings.
5. Fittings Markings
  - a. Meet the minimum requirements of AWWA/ANSI C151/A21.51
  - b. Minimum Markings shall include:
    - 1) "DI" or "Ductile" cast or metal stamped on each fitting.
    - 2) Applicable AWWA/ANSI standard for that fitting.
    - 3) Pressure rating.
    - 4) Number of degrees for all bends.
    - 5) Nominal diameter of the openings.
    - 6) Year and country fitting was cast.
    - 7) Manufacturers mark.
6. Joints
  - a. Push-On Joints
    - 1) Comply with AWWA/ANSI C111/A21.11

- b. Mechanical Joints
    - 1) Comply with AWWA/ANSI C111/A21.11.
  - c. Mechanical Joints with mechanical restraint.
    - 1) Restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10.
    - 2) The devices shall have the following working pressure ratings based on size and type of pipe:
      - (a) PVC C900 and C905
        - (1) 3" - 16": 235 psi
    - 3) Ratings are for water pressure and must include a minimum safety factor of 2:1 in all sizes.
    - 4) Restraint devices shall have specific designs for ductile iron and PVC and should be easily differentiated between the two.
    - 5) Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.
    - 6) Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly.
    - 7) Proper actuation of the gripping wedges shall be ensured with torque-limiting twistoff nuts.
  - d. Push-On Restrained Joints
    - 1) Restraining Push-On Joints by means of a special gasket.
    - 2) Pressure rating shall exceed the working and test pressure of the pipeline
    - 3) Approved Manufacturers Products:
      - (a) Flex-Ring Joint Pipe - Contractor shall note that all existing Ductile Iron Pipe fittings scheduled for points of connections were installed with Flex-Ring Fittings. Contractor shall verify prior to construction.
      - (b) Lok-Ring Joint Pipe
      - (c) TR Flex Joint Pipe
      - (d) HP Lok Joint Pipe
  - e. Push-On Restrained Joint bell and spigot
    - 1) Pressure rating shall exceed the working and test pressure of the pipeline
7. Gaskets
- a. NSF 61/600 approved for use with potable water.
  - b. AWWA C111/A21.11.
  - c. MJX CI type for CI and PVC C900 pipe.
  - d. MJC IPS transition type for IPS pipe.
8. Bolt and Nuts
- a. See Paragraph 2.03.
9. Interior and Exterior Coating: Fusion Bonded Epoxy per AWWA C116.
10. Encase buried ductile iron pipe fittings with polyethylene conforming to ANSI/AWWA C105/A21.5.

- B. Approved Manufacturers
  - 1. American Cast Iron Pipe Company.
  - 2. McWane/Tyler Ductile.
  - 3. U.S. Pipe.
  - 4. Sigma Corporation.
  - 5. Star Pipe Products.
  - 6. EBAA Iron, Inc..
  - 7. Or Approved Equivalent.

#### 2.04 POLYETHYLENE ENCASEMENT

- A. Conform to and install per AWWA C105/A21.5.
- B. The polyethylene encasement shall consist of co-extruded layers of linear low-density polyethylene (LLDPE), which are fused into a single layer of not less than 8-mil thickness. Inside surface shall be infused with an antimicrobial biocide.
- C. Install on all underground metallic items, including: ductile iron pipe, ductile iron fittings, metal body valves, other metal pipe and fittings, fire hydrants, stainless steel couplings, transition couplings, and service and testing tapping saddles.
- D. Approved Manufacturers:
  - 1. V-Bio Enhanced Polyethylene Encasement.
  - 2. Or Approved Equivalent.

#### 2.05 REACTION BACKING (THRUST BLOCKS)

- A. Conform to details shown on Drawings for bends, tees, fire hydrants, dead end plug, and service tap connections.
- B. 3,000 psi concrete for pipe, fittings, and plugs unless specifically shown otherwise on Drawings.

#### 2.06 GATE VALVES:

- A. Gate Valves shall comply with City Engineer's Association of Minnesota (CEAM) specifications. Section 2611.2-C.
  - 1. Minimum working pressure of 250 psi for 4-20-inch valves.
  - 2. Valve body and EPDM encapsulated wedge constructed of ductile iron or cast iron.
  - 3. All gaskets, seals, seats shall be compatible with chloramines. Manufacturer shall submit compatibility information for gasket, seals, seats, etc. for Engineer's review.
  - 4. Resilient seat gate, bubbletight closure design.
  - 5. Meet or exceed AWWA C509 standards.
  - 6. Bronze stem and stem nut.
  - 7. Fusion bonded epoxy coated interior and exterior in accordance with AWWA C550 and complying with NSF 61/600.
  - 8. Equipped with non-rising stem with 2-inch square operating nut, open left (counterclockwise) rotation.



9. Provide adjustable valve box, riser, and cover. Provide stem extensions for all actuators. Extension length will vary with the depth of bury for each valve and shall extend to within one (1) foot of top of valve box. Provide all necessary appurtenances for complete operation of valve.
10. Wrap buried valves with polyethylene encasement conforming to AWWA C105/A21.5.
11. Connections: Mechanical joint, unless otherwise specified on Drawings.
12. Provide gaskets, non-asbestos ring style gaskets, rated for the appropriate test pressure, and compatible with chloramines.
13. Provide Stainless Steel Type 304 nuts and bolts. All tie rod type restraints shall be stainless steel.
14. Markings shall be cast on the bonnet or body of each valve and shall show the manufacturer's name or mark, year valve casting was made, size of valve, and the designation of working water pressure.
15. Manufacturer shall furnish an affidavit stating that the valve and all materials conform to the applicable AWWA requirements and all tests specified under the respective standard have been performed and have been met. Valves shall be NSF 61/600 certified.
16. Contractor shall provide the Owner one valve wrench for the first valve installed and one wrench for every additional five valves installed.
17. Approved manufacturers for valves:
  - a. American Flow Control.
  - b. Mueller Company.
  - c. Or Approved Equivalent.

## 2.07 VALVE BOXES

- A. All valve boxes shall comply with the City Engineer's Association of Minnesota (CEAM) specifications. Section 2611.2-C.
- B. Valve boxes shall be three-piece cast iron with a round base, Tyler Union or approved equal.
- C. The top of the valve boxes shall be 5.25 inches in diameter.
- D. Valve box height shall be suitable for the burial depth of the valve, installed plumb, with poly wrap encasement, and shall have sufficient length to permit at least 6 inches of adjustment above and below grade when the valve is laid to the specified depth. Adjustment shall be screw type.
- E. Covers shall have the word "Water" cast on top.
- F. All buried valves shall have a full operator extension, as required to allow for operator use.

## 2.08 HYDRANTS:

- A. All Hydrants shall comply with the City Engineer's Association of Minnesota (CEAM) specifications. Section 2611.2-B
- B. Dry barrel type manufactured in accordance with AWWA C502 and UL 246 with breakaway traffic flange such that automatic, positive shut-off of the hydrant is maintained if the hydrant is damaged.

- C. Rated for minimum working pressure of 250 psig.
- D. Equipped with a main valve, which opens against water system pressure.
- E. Removable internal hydrant parts through the hydrant barrel without need for excavation.
- F. Bury depth of hydrants shall be as indicated on Drawings.
- G. Hydrant extensions: Fabricate in multiples of 6 inches with rod and coupling to increase barrel length.
- H. Provide two 2.5-inch hose nozzle connections and one 4.5-inch pumper nozzle connection; pumper nozzle sized to Owner's standard.
- I. Counterclockwise opening rotation; hydrant operating nut for main hydrant valve. Nuts and caps shall be National Standard Thread (NST).
- J. All underground bolts to be Type 304 stainless steel.
- K. Owner's standard nozzle threads and operating nuts (NST).
- L. Provide 6-inch diameter push-on joint connection and hydrant lead piping unless shown otherwise on Drawings or necessitated by field conditions.
- M. Connect hydrants to hydrant lead piping, provide thrust restraint blocks, and, if necessary, any mechanical restraint and adapters.
- N. Provide hydrant operating wrench for each hydrant.
- O. Finish: Primer and two coats of enamel of color required by Owner. Repair finish damaged in shipping or handling.
- P. Provide and install a hydrant lock directly on the operating nut of the hydrant. Hydrant Lock shall be Custodian Hydrant Lock by Hydra-Shield Manufacturing or approved equal. Provide 1 key wrench per hydrant to the Owner for operation of the hydrant locks.
- Q. Approved Manufacturers:
  - 1. Centurion as manufactured by Mueller Co.
  - 2. Waterous 5.25 Pacer Fire Hydrant as manufactured by American Flow Control.
  - 3. Or Approved Equivalent.

## 2.09 APPURTENANCES

- A. Nuts and Bolts: Buried and non-buried applications, provide AISI 304 Stainless Steelnuts and bolts, for all nuts and bolts on fittings, valves, hydrants, and transition couplers. Properly lubricate bolts to prevent seizing.
- B. Where stainless steel fasteners come in contact with aluminum, ductile iron, or other dissimilar metals, separate or isolate bolts and nuts from dissimilar metals with sleeves and washers.

1. Sleeves: Mylar, 1/32 inch thick, of proper size to fit bolts. One sleeve required for each bolt.
    - a. Manufacturer:
      - 1) Central Plastics Company, Shawnee, Oklahoma.
      - 2) Or Approved Equivalent.
    - b. Washers: 63 glass phenolic, 1/8 inch thick, of proper size to fit bolts. Two washers are required for each bolt.
  2. Prior to installing nuts, coat threads of stainless steel fasteners with the following anti-seize compound to prevent galling of threads.
    - a. Manufacturers:
      - 1) Never Seez Compound Corporation, Never-Seez.
      - 2) Oil Research, Inc., WLR No. 111.
      - 3) Or Approved Equivalent.
- C. Tie Bolts: Cretex Gasketed Pipe Joint Ties, or approved equivalent.

## 2.10 MISCELLANEOUS ACCESSORIES

- A. Pipe Lubricant: Per pipe manufacturer's recommendations.
- B. Tracer Wire: See Section 33 05 97.16 – Markers For Utility Identification.
- C. Pipeline Insulation:
  1. Extruded polystyrene rigid foam insulation conforming to ASTM C578, Type IV, with a minimum thermal resistance (R-value) of 5.0 per 1 inch of thickness at a mean temperature of 75° F. Water absorption for the insulation shall not exceed 0.10 by volume as measured by ASTM C272.
  2. Materials shall be delivered in their original unopened units, stored off the ground, protected from direct sunlight with a light-colored opaque polyethylene film and ventilated to prevent excessive temperature. Damaged or deteriorated materials shall be removed from the premises.
  3. Manufacturers:
    - a. Owens-Corning.
    - b. Or Approved Equivalent.

## **PART 3 EXECUTION**

### 3.01 GENERAL

- A. All waterline pipe, valves, fittings, and appurtenances shall be installed in compliance with means and methods specified in the City Engineer's Association of Minnesota (CEAM) specifications, Section 2611.3.
- B. Contractor shall verify location of piping and piping systems as shown on the Drawings.
- C. Contractor shall be aware that it may be necessary to move a piping run a reasonable amount or shift it slightly up or down to avoid an existing obstruction or other piping runs. Contractor shall not receive additional compensation due to slight shift or movement of piping runs.

- D. Not all fittings may be shown on the Drawings, the fittings shown are meant to give a graphical representation only. Additional fittings required for differences in vertical and/or horizontal alignment may be required. Contractor shall not receive additional compensation due to additional fittings required to meet vertical and horizontal alignments.
- E. Lay water main to lines and grades established and indicated on the plans. All buried piping 30 inches in diameter and less with less than 6.5 feet of cover shall be insulated. All buried piping 30 inches in diameter and over with less than 6 feet of cover shall be insulated. Trench insulation shall be provided above the pipe with a minimum thickness of 4 inches at the width shown on the drawings for all storm sewer crossing of pressure piping.
- F. Contractor shall provide the Owner with a minimum 48-hour notice on all requests to take a watermain out of service and shall be only at off-peak times.
- G. If unforeseen obstructions are encountered during the progress of the work and interfere with the proposed vertical or horizontal alignment of the pipeline, the Engineer will alter the plans and order a deviation in line, and/or grade, or may arrange for the removal or relocation of the obstruction. If pipe grades are established on the plans, the Contractor shall not deviate from plan line or grade without Engineer's approval.
- H. Contractor has ability to modify the inverts of the potable water to avoid pipe conflicts. These systems have been set constant elevations throughout the site. Contractor shall have the ability to modify invert elevations as long as 7.5 feet of cover has been maintained.
- I. All joints shall be properly restrained in accordance with these specifications.
- J. Contractor shall provide dewatering as necessary; piping shall not be laid in water or wet conditions.
- K. See Section 31 23 23.23 – Backfilling and 31 23 16.13 – Trenching, for all trench excavation and backfill requirements, and piping system bedding requirements.

### 3.02 INSTALLATION

- A. Cutting Pipe:
  - 1. Cut pipe neatly without damage to pipe.
  - 2. Cut smooth, straight, and at right angles to the pipe axis using saw or abrasive wheel.
  - 3. Dress and bevel end of cut pipe to remove roughness and sharp corners.
  - 4. Where rubber gasket joints are used, the outer edge shall be beveled by grinding or filing to produce a smooth fit.
- B. Cleaning:
  - 1. Thoroughly clean pipe and fittings of foreign matter before installation.
  - 2. Keep pipe and fittings clean until piping system placed into service.
  - 3. Clean joint contact surfaces immediately prior to joining.

C. Trenching:

1. See Section 31 23 16.13 – Trenching.
2. Trench preparation shall proceed in advance of pipe installation only so far as can be backfilled the same day, or as permitted by the Owner's specifications.
3. Keep trenches free from surface and groundwater until pipe jointing is complete.

D. Jointing and Laying Pipe:

1. Pipe materials shall be handled carefully. Damage to protective coatings, linings, and joint fittings shall be cause for rejection of the materials. Prior to installation, each pipe section, fitting, or valve shall be thoroughly inspected by the Contractor to detect damage or defects. Contractor shall inform Engineer of such damage or defects.
2. Lay pipe with bell ends facing in the direction of laying.
3. Comply with pipe manufacturer's recommended laying and joining instructions, and with Unibell Standards, unless specifically required otherwise by these specifications.
4. Mechanical Joints:
  - a. Do not over tighten joints; if an effective seal is not obtained, disassemble joint, clean thoroughly, and reassemble.
  - b. Where tie rods are used for restraining joints, align holes carefully to permit installation of harness bolts.
5. Push on Joints:
  - a. Clean and lubricate joint surfaces immediately before completing the joint.
  - b. Bevel the spigot ends of field cut piping.
6. Mechanical Sleeve Type Couplings.
  - a. Cut pipe ends clean square and smooth.
  - b. Leave a space not less than 1/4" or more than 1" between pipe ends.
7. When pipe laying is not in progress, the open ends shall be closed by watertight plugs or other approved means. In the presence of water, the pipe end shall remain sealed until the trench has been properly drained or dewatered.
8. At connections to existing piping, Contractor shall remove all dirt and debris that is allowed to enter the existing lines.
9. Inspection: Do not cover pipe and fittings until all bedding, joints, and polyethylene wrap have been inspected.
10. Any defective, damaged, or gravity piping which has had its grade or joint disturbed after layer shall be replaced.

E. Pipe Thrust Restraint.

1. Thrust restraint shall be completed in accordance with AWWA C605, AWWA C907 and AWWA M23 and should adhere to the manufacturer's recommendations.
2. Provide a complete system of mechanical restraint where indicated on the Drawings to prevent pipe movement caused by internal pressure.

3. Provide a complete system of reaction blocking and/or mechanical restraint to prevent pipe movement caused by internal pressure.
4. Provide concrete thrust blocking and mechanical restraint at tees, crosses, bends deflecting 90°, plugs, caps and similar locations whether specifically indicated on the drawings or not.
5. All rods, nuts, bolts, and hardware shall be Type 304 stainless steel.
6. Concrete thrust blocking shall:
  - a. Concrete thrust blocks shall be precast concrete when a joint is mechanically restrained.
  - b. Blocking shall extend from the fitting to solid undisturbed earth and shall be installed such that the joints are not covered by concrete.
  - c. Provide polyethylene encasement completely over the fitting to protect the bolts from concrete.
  - d. The minimum thickness of concrete between the fitting and the soil bearing area shall be 6".
  - e. Concrete reaction blocking shall be placed so that pipe and fitting joints are accessible for repair. Pressure testing shall not proceed until concrete reaction blocking has reached its design strength. High early strength concrete may be used.

F. Placing Hydrants and Auxiliary Valves.

1. Fire hydrants shall be installed in accordance with AWWA C600 or AWWA M17 and the recommendations of the manufacturer.
2. Hydrants and auxiliary gate valves and boxes shall be placed in a vertical position (plumb) at the locations indicated on the plans.
3. Excavate an area not less than 18" square and 18" deep below the base of each hydrant and fill this excavation with 3/4" to 1" clean rock or gravel before placing the hydrant.
4. After the hydrant is placed, construct a concrete thrust block between the back of the hydrant and the firm undisturbed earth at the back of the hydrant excavation.
5. Place an additional quantity of clean rock or gravel at the base of the hydrant to completely cover the base of the hydrant to a depth of at least 6" above the barrel drain ports.
6. Place the hydrant auxiliary gate valve in the position indicated on the plans.
7. Set the hydrant with the bury line at the finished ground surface. Contractor shall refer to plans for finish grade elevations which vary from existing ground elevations. Provide hydrant extension if required.

G. Placing Valves and Valve Boxes.

1. Valves shall be placed on a precast concrete block, with a thickness of at least 6" and a surface area of at least 8" x 18" and centered at the valve center.
2. Valves and boxes shall be placed in a vertical position, with the top of the valve box flush with the pavement in paved areas, and approximately 1" above finish grade in turfed areas.
3. Where the plans indicate that the future grade at the valve location will be higher or lower than the surface elevation at the time of valve installation,

the Contractor shall provide the correct combination of extension pieces such that the elevation of the valve box can be adjusted to the future finish grade without replacing the valve box.

4. Install valve adaptor and debris plug on each valve and box.
5. Construct concrete valve box collar flush with finish surface in roadway areas where shown on plans or directed by the Engineer.

H. Polyethylene Encasement

1. Where required, all piping, fittings, valves, and appurtenances shall be fully encased in polyethylene film tubing. The polyethylene tubing shall be of appropriate size for the size of pipe being installed. Install polyethylene tubing prior to lowering pipe into trench.
2. Tubing length shall be long enough to provide a minimum of one (1) foot overlap at all joints, fittings, and appurtenances. After completing the pipe jointing and positioning the tubing material, the overlap shall be secured into place with plastic adhesive tape wrapped circumferentially around the pipe at least three (3) full turns.
3. The fit shall be snug over the pipe with not excess or bunched up material. Repair all rips, punctures, or other damage with taping and overlapping patching.

3.03 WATER MAIN REPLACEMENT

- A. Existing asbestos-cement pipe shall be left in place and disturbed as little as possible.
- B. Removal of Existing Water Mains.
  1. Unless indicated otherwise on the plans, the Contractor shall remove and lawfully dispose of existing water main pipe and fittings as part of the Contract work where the existing mains are near or in conflict with new mains.
  2. The Owner may want to retain possession of some fittings. If Owner does want fittings, Contractor shall deliver removed fittings to an area designated by the Owner.
  3. Pipeline removal is required when the new main is to be located on essentially the same alignment as the existing pipeline to be replaced.
  4. When existing pipelines are found to be located at a depth more than 12" below the depth required for 6'- 0" of soil cover over the pipe, the Contractor may request the approval of the Engineer to abandon the existing water main in place.
  5. When existing pipelines are found to be located at a depth below finish grade where the pipe cover is less than 6'- 0", the Contractor shall excavate below the existing water main depth to provide a finish cover depth of 6'- 0".
  6. Pipe profiles of existing pipes shown on the plans are shown to illustrate assumed pipe depths and grades and to show potential conflicts with other utilities. The actual depth of existing pipelines may vary from the profiles shown on the drawings, and the Contractor shall comply with the requirements of this specification to provide the necessary frost protection.

7. Existing valves shall be abandoned when called for on the drawings. The valves shall be placed in the closed position, box removed and hole backfilled.
- C. Restoring Service.
1. Do not reconnect existing services to new mains until mains are satisfactorily tested and disinfected.
  2. Replace existing services before connecting to new mains if existing service lines are made of lead.
  3. Cooperate with property owners to minimize service interruption time and to assure that services are properly flushed and operating properly.

#### 3.04 DISINFECTION OF WATER MAINS

- A. See Section 33 13 00 – Disinfection of Water Systems.
- B. Testing Methods shall comply with those specified using in the City Engineer's Association of Minnesota (CEAM) specifications. Section 2611.3-E.

#### 3.05 HYDROSTATIC PRESSURE TESTING

- A. Testing Methods shall comply with those specified using in the City Engineer's Association of Minnesota (CEAM) specifications. Section 2611.3-G.
- B. Hydrostatic testing must be completed in accordance with ANSI/AWWA C605-11 (PVC pipe) or most current edition for every section of water main between successive valves or other closures.
- C. Each section shall be tested by applying a hydrostatic pressure of 150 psi as measured by a gauge at the lowest hydrant.
- D. The above-described tests shall be made under the observation of the Engineer or authorized Owner's representative. The Contractor shall correct and/or replace any faulty material or workmanship at his expense to the satisfaction of the Engineer. Tests shall be repeated after any replacements have been made.

#### 3.06 SEPERATION OF WATER MAINS AND SEWERS

- A. Horizontal Separation – Sewers shall be laid at least 10 feet (3.0 m) horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10-foot (3.0 m) separation, the water main may be installed on an undisturbed earth shelf located on one side of the sewer and at an elevation, so the bottom of the water main is at least 18 inches (450 mm) above the top of the sewer.
1. Where this vertical separation cannot be obtained, the sewer shall be
- B. Vertical Separation
1. Unless otherwise specified in the Contract Documents, the potable water lines shall generally be placed with the minimum specified cover. However, a greater depth may be required to clear process piping and sanitary sewers and sewer services, and no additional compensation shall be provided for such adjustments.



2. Sewers Crossing Under Water Mains – The sewer shall be laid to provide a minimum of 18 inches (450 mm) from the top of the sewer to the bottom of the water main. The crossing shall be arranged so the water pipe joints will be equidistant and as far as possible from the sewer.
  3. Sewers Crossing Over Water Mains – Either the water main or the sewer main must be encased in a watertight carrier pipe that extends 10 feet (3.0 m) on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be PVC, ABS, or HDPE, and the ends sealed with a rubber gasket or boot.
- C. Special Conditions – When it is impossible to obtain the proper horizontal and vertical separation as stipulated above, one of the following methods shall be specified:
1. Water Pipe: The sewer shall be designed and constructed of materials and with joints that are equivalent to water main standards of construction and shall be pressure tested at 150 psi (1034 kPa) to assure water tightness prior to backfilling to assure watertightness.

**END OF SECTION**

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**SECTION 33 11 16**  
**SITE WATER LINES**

**PART 1 GENERAL**

1.01 SUMMARY

- A. Section includes:
1. Underground water main pipe, fittings, valves, fire hydrants, bedding, appurtenances, and installation.
  2. Water service pipe for domestic and fire protection services, including bedding, appurtenances and installation.
  3. Water main pressure testing.
  4. Temporary water service.
  5. Disconnection and termination of water lines.
- B. Related Sections include, but are not limited to:
1. Section 01 33 00 – Submittals.
  2. Section 01 60 00 – Material and Equipment.
  3. Section 01 77 00 – Contract Closeout.
  4. Section 31 23 16.13 - Trenching.
  5. Section 33 13 00 - Disinfection of Water System.

1.02 REFERENCES

- A. Reference Standards include:
1. ANSI/AWWA C104/A21.4 - Cement-Mortar Lining for Gray-Iron and Ductile-Iron Pipe and Fittings for Water.
  2. ANSI/AWWA C110/A21.10 - Gray-Iron and Ductile-Iron Fittings, 3-Inch through 48-Inch, for Water and Other Liquids.
  3. ANSI/AWWA C111/A21.11 - Rubber Gasket Joints for Gray-Iron and Ductile-Iron Pressure Pipe and Fittings.
  4. ANSI/AWWA C 115/A21.15 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
  5. ANSI/AWWA C150/A21.50 - American National Standard for Thickness Design of Ductile-Iron Pipe.
  6. ANSI/AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds for Water or Other Liquids.
  7. ANSI/AWWA C153/A21.53 - Ductile-Iron Compact Fittings, 3-Inch through 12-Inch, for Water and Other Liquids.
  8. AWWA C502 - Dry Barrel Fire Hydrants.
  9. AWWA C509 - Resilient-Seated Gate Valves, 3 through 12 NPS, for Water and Sewage Systems.
  10. AWWA C550 - Standard for Protective Epoxy Interior Coating for Valves and Hydrants.
  11. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
  12. AWWA C605 - Underground Installation of PVC Pressure Pipe and Fittings.

13. AWWA C800 - Standard for Underground Service Line, Valves, and Fittings.
14. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. through 12 in., for Water.
15. AWWA C907 - Polyvinyl Chloride (PVC) Pressure Fittings for Water-4in. through 8 In.
16. AWWA C906 – Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 63 In., for Water Distribution.
17. ASTM B88 - Seamless Copper Water Pipe.
18. ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb Rammer and 12 inch Drop.
19. ASTM D1784 - Rigid Poly (Vinyl Chloride) Compounds and Chlorinated Poly (Vinyl Chloride) Compounds.
20. ASTM D1785 - Poly (Vinyl Chloride) Plastic Pipe, Schedules 40, 80, and 120.
21. ASTM D2241 - Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR).
22. ASTM D2466 - Poly (Vinyl Chloride) (PVC) Plastic Pipe fittings, Schedule 80.
23. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
24. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil Aggregate Mixtures in Place by Nuclear Methods (Shallow Depth).
25. ASTM D3139 - Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.
26. UL 246 - Hydrants for Fire-Protection Service.
27. NSF Standard No. 14, 60, and 61 - National Sanitation Foundation.
28. WW-T-779c - Federal Specifications.

#### 1.03 SUBMITTALS FOR REVIEW

- A. See Section 01 33 00 - Submittals
- B. Product Data: Provide data on materials in accordance with Section 01 30 00 for all piping, fittings, valves, fire hydrants, corporation stops, curb stops, tapping sleeves, service and tapping saddles, transition couplings, pipe adapters, and specialties.
- C. Manufacturer's Instructions: For valves, hydrants, and specialties, furnish in accordance with Sections 01 33 00 and 01 60 00 manufacturer's printed instruction for delivery, handling, storage, assembly, installation, adjustment, special tool requirements, and maintenance requirements.

#### 1.04 SUBMITTALS FOR CLOSEOUT

- A. Section 01 33 00: Submittals.
- B. Provide all special tools required for valves, hydrants, and specialties.
- C. Provide records of measured depths of water mains, service leads, valves, connections, transition couplings, adapters, thrust blocking; measured horizontal and vertical locations of underground utilities and appurtenances referenced to

permanent surface improvements; measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work; and field changes of dimension and detail.

#### 1.05 QUALITY ASSURANCE

- A. Valves: Provide manufacturer's name, valve size, and pressure rating marked on valve body.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to and at site under provisions of Section 01 60 00.
- B. Deliver and store valves and fire hydrants in shipping containers with labeling in place.
- C. Tag each fire hydrant and valve to correspond with the location shown on the Drawings.

### **PART 2 PRODUCTS**

#### 2.01 MATERIALS

- A. Water Pipe:
  - 1. Polyvinyl Chloride (PVC) Pipe:
    - a. AWWA C900 DR 18 for sizes 4 inches to 12 inches in diameter.
    - b. All pipe to have standard cast iron pipe outside dimension.
- B. Ductile Iron Fittings:
  - 1. C900 PVC pipe (4 inches to 12 inches): Grip-Tite, SSB, ductile iron Class 350 fittings conforming to ANSI/AWWA C153/A21.53 compact push-on fittings.
  - 2. PVC fittings maybe used in-lieu of ductile iron fittings for PVC pipe installations 12 inches and smaller. PVC fittings shall meet all applicable requirements of the latest edition of AWWA C900 and AWWA C907.
  - 3. Provide restrained joints and fittings where so indicated on the drawings.
  - 4. Push-on or mechanical rubber gasket joints conforming to the compression gasket ring requirements of ANSI/AWWA C111/A21.11 and ASTM D3139, and as shown on Drawings.
  - 5. Cement line pipe fittings in accordance with ANSI/AWWA C104/A21.4.
  - 6. Buried and submerged ductile iron pipe fittings shall have a bituminous exterior coating (asphalt coating).
  - 7. Encase buried ductile iron fittings with polyethylene conforming to ANSI/AWWA C105/A21.5.
  - 8. Provide stainless steel nuts, bolts, and glands.
  - 9. Nuts, bolts, glands, and gaskets incidental.
- C. Gate Valves:
  - 1. Minimum working pressure of 200 psi for 4-inch to 12-inch valves.

2. Valve body and rubber-encapsulated wedge constructed of ductile iron or cast iron.
3. Resilient seat gate, bubbletight closure design.
4. Meet or exceed the ANSI/AWWA C509 standards.
5. Bronze stem and stem nut.
6. Epoxy-coated interior and exterior.
7. Equipped with non-rising stem with 2-inch square operating nut, open left (counter clockwise) rotation.
8. Provide two-piece adjustable valve box, riser, cover marked "Water", T-wrench of sufficient length (one wrench for each five valves installed), and polyethylene encasement conforming to ANSI/AWWA C105/A21.5 for buried valves.
9. Provide gate valve adaptor, inc., or approved equal, to set valve box on gate valve.
10. Push-on joints for gate valves 12 inches and smaller.
11. Tapping valve should provide flanged end to connect to tapping sleeve.
12. Provide gaskets and stainless steel nuts and bolts.
13. Approved manufacturers:
  - a. American Flow Control
  - b. Mueller Company
  - c. Waterous Valve Company
  - d. A.P. Smith Valve Company
  - e. M & H Valve Company
  - f. American-Darling Valve
  - g. Clow Valve Company
  - h. Or approved equal

D. Fire Hydrants:

1. Dry barrel type manufactured in accordance with ANSI/AWWA C502 and UL 246 with breakaway traffic flange such that automatic, positive shut off of the hydrant is maintained if the hydrant is damaged.
2. Rated for minimum working pressure of 150 psig.
3. Equipped with a main valve, which opens against water system pressure. Main valve shall be bronze seated and valve seat shall have a minimum 5-inch diameter opening and thread into a non-clog bronze drain ring.
4. Removable internal hydrant parts through the hydrant barrel without need for excavation.
5. Hydrant extensions: Fabricate in multiples of 6-inches with rod and coupling to increase barrel length.
6. Provide two (2) 2-1/2 inch hose nozzle connections and one (1) 4-1/2 inch pumper nozzle connection; pumper nozzle sized to Owner's standard.
7. Counter clockwise opening rotation; hydrant operating nut for main hydrant valve.
8. All underground nuts and bolts to be type 304 stainless steel.
9. Owner's standard nozzle threads and operating nuts.
10. Provide 6-inch diameter push-on pipe joint connection and hydrant lead piping unless shown otherwise on Drawings or necessitated by field conditions.
11. Gate valve on hydrant lead is specified separately in this section.

12. Connect hydrants to hydrant lead piping, provide thrust restraint blocks, and, if necessary, any mechanical restraint and adapters.
  13. Provide hydrant operating wrench for each hydrant,
  14. Finish: Primer and two coats of enamel of color required by Owner.
  15. Approved manufacturers:
    - a. Pacer by Waterous Company; or
    - b. Approved Equal
- E. Transition Couplings:
1. Ductile iron end and center rings.
  2. Epoxy or nylon coated inside and out.
  3. Where pipes of dissimilar metal are joined, ensure dielectric insulation to prevent galvanic corrosion.
  4. Install with stainless steel bolts.
  5. Provide polyethylene encasement.
  6. Approved manufacturers:
    - a. Power Seal
    - b. Ford
    - c. Romac
    - d. Or approved equal.
- F. Service and Tapping Saddles:
1. All stainless steel tapped outlet, band clamps, nuts, bolts, and washers.
  2. Heavy gauge type 304 stainless steel shell construction, passivated welds, double bolt type with minimum band width of 6 inches, and rubber "O"-ring gasket pad meeting ASTM D2000.
  3. Meet or exceed the ANSI/AWWA C800 standards, 200 psig.
  4. Approved manufacturers:
    - a. Romac Industries, Inc.
    - b. Dresser Industries
    - c. The Ford Meter Box Company
    - d. Or approved equal
- G. Tapping Sleeve:
1. Stainless steel 304 full wrap around body with passivated welds.
  2. All stainless steel tapped outlet, nuts, bolts, washers.
  3. Gasket to provide seal around full circumference of pipe.
  4. Minimum 150 psi working pressure.
  5. Meeting AWWA C223 requirements.
  6. Approved manufacturers:
    - a. Romac Industries
    - b. The Ford Meter Box Company
    - c. PowerSeal Pipeline Products Corp
    - d. Or approved equal.
- H. Reaction Backing (Thrust Blocks):
1. Conform to details shown on Drawings for bends, tees, fire hydrants, dead end plug, and service tap connections.

2. 3,000 psi concrete for pipe, fittings, and plugs unless specifically shown otherwise on Drawings.
  3. Pre-mix concrete sack for service tap connections as shown on Drawings.
- I. Bedding and Backfilling:
    1. Schedule: As specified in Section 31 23 23.23 and detailed on Drawings.
    2. Materials: As specified in Section 31 23 23.23.
  - J. All products coming into contact with water intended for use in a public water system shall meet ANSI/NSF Standards 60 and 61. A product will be considered as meeting this standard if so certified by NSF, UL, or other organizations accredited by ANSI to test and certify such products.

### **PART 3 EXECUTION**

#### 3.01 EXAMINATION

- A. Verify that building service connection and municipal utility water main size, location, and invert elevations are as indicated.

#### 3.02 PREPARATION AND STORAGE

- A. Store pipe on-site on flat surface so barrel is evenly supported. Do not stack higher than six (6) feet. Cover pipe with opaque material for extended storage. Keep ends of stored pipe covered until installation.
- B. Remove scale and dirt on inside and outside of pipe, fittings, valves, and appurtenances before assembly. Inspect pipe and other materials for damage before installation.

#### 3.03 REMOVAL OF EXISTING WATER MAIN PIPE AND APPURTENANCES

- A. Remove existing pavement per Section 31 10 00.
- B. Excavate trench per Section 31 23 16.13.
- C. Remove water main pipe, fittings, valves, hydrants, service leads, concrete vaults, abandoned utilities, other associated appurtenances, and debris shown on Drawings or encountered along the route of removals in a manner and schedule that minimizes disruption of water distribution service and traffic.
- D. Dispose of, or at Contractor's option salvage, all other distribution system and service connection materials off-site and in accordance with all applicable laws and regulations.
- E. Notify Engineer and Owner at least seven (7) days in advance of temporary disruptions of water service at locations along route of construction. Coordinate the scheduling of service disruptions and connection operations with the Owner so as to least interfere with existing water system service.



### 3.04 BEDDING

- A. Excavate pipe trench in accordance with Section 31 23 16.13 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Form and place concrete for pipe thrust restraints at any change of pipe direction, tee, plug, or hydrant. Place 3,000 psi concrete to permit full access to pipe and pipe accessories. Comply with details on Drawings for bends, tees, fire hydrants, and service tap connections.
- C. Place PVC Pipe Bedding material per Section 31 23 23.23 and the details on the Drawings.
- D. Place backfill per Section 31 23 23.23 and the details on the Drawings.

### 3.05 INSTALLATION - PIPE, VALVES, HYDRANTS, AND APPURTENANCES

- A. Install all pipe and appurtenances in strict accordance with manufacturer's recommendations and in accordance with AWWA 600 and AWWA C605, as applicable.
- B. Install water main, service leads, and appurtenances so as to avoid existing utilities. Maintain separation from sewer pipes as specified in SEWER CROSSING REQUIREMENTS of this Section.
- C. All foreign material or dirt shall be removed from the inside of the pipe before it is lowered into its position in the trench and it shall be kept clean by approved means during and after laying.
- D. Cut pipe in a neat and workmanlike manner without damaging the pipe.
- E. Trench preparation shall proceed in advance of pipe installation only so far as can be backfilled the same day, or as permitted by the purchaser's specifications.
- F. Contractor may, in suitable locations, install pipe by trenchless methods for convenience. If trenchless method requires substitution of pipe material, new pipe material shall meet equivalent pressure class and inside diameter of new pipe material shall be equal to or greater than specified PVC material. Damage to existing utilities resulting from trenchless installation methods shall be Contractor's responsibility to repair damaged utility.
- G. Excavate and backfill excavations, bore pits, and trenches in accordance with Section 31 23 23.23. All trenches, excavations, and boring pits shall be sheathed and braced, as necessary, so as to provide a safe place for workmen. Comply with all applicable OSHA safety requirements relating to trenching, boring operations, confined spaces, and other aspects of this type of construction.
- H. Keep trenches free from surface and ground water until pipe jointing is complete.

- I. Locate curb stop valves, gate valves, and hydrants a uniform distance from property line, utility easement line, back of curb, or other applicable line, when so required by municipal code or policy or so directed by Engineer.
- J. All hydrants, valves, and fittings shall be set on cast in place or precast concrete blocks in order to prevent the weight from being transmitted to the pipe.
- K. Form and place concrete for thrust blocking at each bend, tee, change of direction, plug, or hydrant. Thrust blocks shall bear on undisturbed trench wall.
- L. When pipe laying is not in progress, the open end(s) of the pipe and fittings shall be plugged. The temporary plug shall be the same size and type used to make a permanent closure to insure a watertight plug and absolute cleanliness inside the pipe.
- M. Install valve boxes plumb and directly over valve.
- N. Adjust gate valve and curb stop boxes as shown on Drawings. Set boxes to allow equal movement both above and below finish grade. When in street, set valve boxes ½ inch below finish street grade. See Drawings for curb stop valve details at grade.
- O. Reconnect downstream end of the curb stop and gate valves to existing services with appropriate connectors and couplers. Comply with connections and couplings shown on Drawings unless otherwise approved by Engineer.
- P. Pipe and Service Lead Installation:
  - 1. Contractor shall acquire a water tapping permit for tapping any existing water main and pay the fee for the permit. Contractor may choose to hire the City Water Department to make the tap.
  - 2. Install water main and water service leads at a minimum depth of cover of 8 feet. Construct to lines, grades, and dimensions shown on Drawings.
  - 3. Take up and relay any pipe disturbed from its required grade or alignment.
  - 4. Install pipe to allow for expansion and contraction without stressing pipe.
  - 5. Install pipe such that maximum deflections from straight line or grade do not exceed manufacturer's specifications. Install bend fittings where maximum deflections are exceeded.
  - 6. Locate water service leads and curb stops with the property owner when such locations are not shown on the Drawings.
  - 7. Install access fittings to permit disinfection of water system performed under Section 33 13 00.
  - 8. Connect new water supply and/or distribution mains to existing water supply and/or distribution mains wherever necessary. Provide adequate adapters and couplers for connections of different pipe types and sizes.
- Q. Encase all metallic pipe, fittings, valves, fire hydrants, service saddles, couplings, connectors, and other appurtenances in polyethylene sheeting or tubing in accordance with AWWA C105.

- R. Inspection: Do not cover pipe, fittings, valves, couplings, or hydrant barrels until all bedding, joints, and polyethylene wrap have been inspected.
- S. Contractor shall be responsible for cleaning and restoring to full operation of property owner's internal operation (i.e. flow meter, backflow preventer, fire protection, sprinkler line, etc.) if as a result of connecting to existing service lead internal operation is adversely affected.
- T. Replace any pipe, fittings, or appurtenances found defective after installation has been completed.
- U. Water main shall be installed as designated on drawings. Methods of installation include cased bore, non-cased bore and push, and open cut.

3.06 DISINFECTION OF WATER SYSTEM

- A. Flush and disinfect system in accordance with Section 33 13 00.

3.07 FIELD QUALITY CONTROL

- A. Section 01 45 00 - Quality Control: Field inspection and testing.

3.08 HYDROSTATIC TESTING

- A. Hydrostatic testing shall be completed and passed before disinfecting the water system.
- B. Subject newly laid pipe to a leakage and hydrostatic pressure test at 150 psi test pressure for a period of two hours. Provide test pump, pipe taps, connecting piping, test gauge and all necessary appurtenances.
- C. Fill water main with water a minimum of 24 hours before the test and expel all air from the main.
- D. Avoid development of water hammer in pipeline.
- E. Add make-up water from a vessel of known volume whenever gauge pressure at the testing point falls 5 psi below the required test pressure or on a continuous basis if a suitable by-pass test pump is used, when performing the test.
- F. Add make-up water shall through a corporation stop; not through fire hydrant.
- G. Pressure test service leads and laterals with water mains prior to connection to user services.
- H. Test against closed valves block to block.
- I. Leakage shall not exceed the allowances indicated below:
- J.

Nominal Pipe Size (inches)	Allowable Leakage in U.S. gallons per Hour for 1000 lineal feet (Average Test Pressure in Line: 150 psi)
1	0.09

Nominal Pipe Size (inches)	Allowable Leakage in U.S. gallons per Hour for 1000 lineal feet (Average Test Pressure in Line: 150 psi)
1.5	0.14
2	0.18
3	0.28
4	0.37
6	0.55
8	0.74
10	0.92
12	1.10

- K. If pipeline test section includes various diameters, then allowable leakage shall be the sum of the computed leakage for the applicable lengths of each size.
- L. Locate and repair any visible leaks and any defective areas if test fails.
- M. Retest after completion of repairs.
- N. Repeat procedure until tests pass.

**3.09 SEWER CROSSING REQUIREMENTS**

- A. Install water mains no closer than a horizontal distance of 10 feet from sewer lines, except: when crown of sewer is at least 18 inches below invert of the water main and the sewer is laid in a separate trench or water main is laid to one side of common trench on a bench of undisturbed soil, separation shall be 6 feet horizontally.
- B. Install water main no closer than a vertical distance of 18 inches between the invert of top pipe and crown of bottom pipe at crossings.
- C. Where new water main crosses an existing sewer:
  - 1. Center a full standard pipe length of water main over (or under) sewer if crossing is within 3 feet above sewer or below sewer.
  - 2. No additional protection required if water main is at least 3 feet above sewer.
  - 3. Provide thoroughly compacted backfill between pipes where a new pipe crosses a new or existing pipe for adequate support.

**3.10 DATA FOR AS-BUILT RECORDS**

- A. In accordance with Section 01 77 00, provide records of measured depths of water mains, service leads, valves, fittings, connections, transition couplings, adapters, thrust blocking; measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements; measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work; and field changes of dimension and detail.

### 3.11 TEMPORARY WATER SERVICE

- A. Notify Engineer and Owner at least seven (7) days in advance of the time that service disruptions and connections are scheduled. Notify all users 24 hours prior to interruption of service. Coordinate the scheduling of service disruptions and connection operations with the Owner so as to least interfere with existing water service system.
- B. Provide a licensed master plumber, who will be responsible for the proper installation of the temporary water service system and is in charge of such work per the requirements of the North Dakota State Plumbing Board.
- C. Provide all materials, hoses, and labor for installation of temporary water service connections where temporary service disruptions are required during construction and where service will be interrupted for more than two (2) hours.
- D. Disinfect and flush temporary water materials and hoses prior to the installation of the temporary water service system.
- E. Provide backflow preventive devices on temporary water supply.
- F. Maintain the following 40 psi flow rates for service connections:
  - 1. 1 gallon per minute for 1-inch or smaller services.
  - 2. 4 gallons per minute for 2-inch services.
  - 3. 100 gallons per minute for 4-inch services.
  - 4. 150 gallons per minute for 6-inch services.
  - 5. 200 gallons per minute for 8-inch services.
- G. Properly protect temporary hoses crossing streets and sidewalks.
- H. Place temporary hosing in locations that do not interfere with traffic.
- I. Clearly mark temporary hosing with flags, cones, barricades, etc. to prevent injury to pedestrians.

**END OF SECTION**

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**SECTION 33 13 00**  
**DISINFECTION OF WATER SYSTEM**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Disinfection of water system.
- B. Testing and reporting results.

1.02 RELATED SECTIONS

- A. Section 01 45 00 – Quality Control
- B. Section 33 11 13 - Public Water Utility Distribution Piping.

1.03 REFERENCE STANDARDS

- A. AWWA B300 - Standard for Hypochlorites.
- B. AWWA B301 - Standard for Liquid Chlorine.
- C. AWWA C651 - Standards for Disinfecting Water Mains.
- D. Federal Specifications BB-C-12a, O-C-114a, and O-S-602b.

1.04 DEFINITIONS

- A. Disinfectant Residual means the quantity of disinfectant in treated water.
- B. PPM means parts per million.

1.05 SUBMITTALS FOR INFORMATION

- A. Section 01 33 00 - Submittals: Procedures for submittals.
- B. Test Reports: Indicate results comparative to specified requirements.
- C. Section 01 45 00 - Quality Control: BAC-T Test Results. (Testing costs shall be incidental).
- D. Disinfection Plan: Not less than 7 days prior to starting any disinfection work, the Contractor shall submit to the Engineer a detailed cleaning and disinfection plan. The plan shall cover the method and procedure proposed, to include coordination, the time and sequence of operations, the limits of the pipeline to be cleaned and disinfected, the location of temporary bulkheads, equipment to be used, the manner of filling and flushing of lines, the neutralization and disposal of wasted water, and all other methods and procedures to be followed in performing the required cleaning and disinfection Work.

1.06 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01 33 00.
- B. Disinfection report:
  - 1. Type and form of disinfectant used.

2. Date and time of disinfectant injection start and time of completion.
  3. Test locations.
  4. Initial and 24 hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.
  5. Date and time of flushing start and completion.
  6. Disinfectant residual after flushing in ppm for each outlet tested.
- C. Bacteriological report:
1. Date issued, project name, and testing laboratory name, address, and telephone number.
  2. Time and date of water sample collection.
  3. Name of person collecting samples.
  4. Test locations.
  5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
  6. Coliform bacteria test results for each outlet tested.

#### 1.07 QUALITY ASSURANCE

- A. Regulatory Agency Requirements: Comply with North Dakota Department of Health requirements.
- B. Temporary bulkheads shall be provided during cleaning and disinfection so that the flushing and disinfection work is not applied to existing water lines or to any service portion of new lines installed under this Contract that has been put into service.
- C. The cleaning and disinfection work shall be conducted prior to connection to the existing water lines or to any portion that has been put into service of new lines installed under this Contract. Unless otherwise approved, hydrostatic testing shall be completed prior to final cleaning and disinfection.
- D. Testing Laboratory: Contractor shall obtain sampling bottles from a North Dakota approved laboratory and perform sampling per project requirements and sampling protocol. Contractor shall coordinate sampling and testing schedule with the North Dakota approved laboratory. Contractor shall pay all testing fees and lab costs.
- E. Submit bacteriologist's signature and authority associated with testing.

#### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Protect against damage and contamination.
- B. Maintain caution labels on hazardous materials.
- C. Maintain storage room dry and with temperatures as uniform as possible between 60 and 80° F.
- D. Provide necessary signs, barricades, and notices to prevent any person from accidentally consuming water or disturbing system being treated.



## **PART 2 PRODUCTS**

### **2.01 DISINFECTION CHEMICALS**

- A. AWWA B300, Hypochlorite: Shall conform to Federal Specification O-C-114a, Type II, Grade B, or Federal Specification O-C-602b.
- B. AWWA B301, Liquid Chlorine: Shall conform to Federal Specification BB-C-120a.

## **PART 3 EXECUTION**

### **3.01 DISINFECTION PLAN**

- A. Submit a detailed cleaning and disinfection plan to the Engineer, not less than 7 days prior to starting any disinfection work.

### **3.02 PREPARATION**

- A. Verify that piping system has been cleaned, inspected, pressure tested, and flushed. The line shall be cleaned by flushing the line at the maximum velocity.
- B. Perform watermain and associated appurtenances disinfection activity before returning permanent water service to said Work area. Coordinate with Engineer and Owner.

### **3.03 DISINFECTION OF WATER SYSTEMS**

- A. Perform disinfecting in accordance with AWWA C651 prior to start-up. Coordinate with other Contractors, Engineer, and Owner.
- B. Provide and attach required tools, equipment, and materials to perform the Work of this Section. Disinfectant material shall be introduced into the water system through a corporation cock installed in the top of the pipe.
- C. Inject treatment disinfectant into piping system to obtain 50 to 80 ppm residual for 24 hours or 200 ppm retained for 3 hours.
- D. As chlorinated water flows past fittings and valves, related valves and hydrants shall be operated so as to disinfect appurtenances and pipe branches.
- E. If disinfectant residual is less than 25 ppm, repeat system treatment.
- F. Flush, circulate, and clean until the chlorine residual is lowered to approximately 1.0 ppm; use system water supply.
- G. Upon making service lead connections, flush or inform property owner or tenant to flush water through associated service system for a period sufficient to fully turn-over the water service system. Provide bacteriological tests.
- H. Any sections of water main and service line leads that cannot be chlorinated in the fashion stated in this section and the final service lead tie-in points shall be swabbed with chlorine solution prior to installation.

- I. Heavily chlorinated water should not remain in prolonged contact (maximum of 48 hours) with the water main pipe and should not be discharged into the trench.
- J. Properly dispose of heavily chlorinated water supply in an environmentally acceptable manner with permission of the Engineer.

#### 3.04 FIELD QUALITY CONTROL

- A. Section 01 45 00 - Quality Control: Field inspection and testing.
- B. Two or more successive test samples indicating bacteriological satisfactory water shall be obtained before facility is placed into operation.
- C. It is not recommended that samples be collected from hoses or fire hydrants.
- D. Samples shall be collected by the Contractor or testing laboratory in the presence of the Engineer.
- E. Taps are to be provided so at least one set of samples may be collected from every 1,200 feet of new water main.
- F. Two or more successive test samples, taken at least 24 hours apart, indicating bacteriological satisfactory water shall be obtained before any system is placed into operation.
- G. The testing laboratory shall test for coliforms and e-coli using the "colilert" or other Engineer approved equivalent test. The "Colilert" test is a pass/fail test that does not quantify the amount of bacteria. Any presence of coliforms or e-coli shall qualify as a failed test.
- H. If initial disinfection fails to produce satisfactory bacteriological results, the new main may be refushed and shall be resampled. If checked samples also fail to produce acceptable results, the main shall be rechlorinated until satisfactory results are obtained.
- I. All testing costs shall be paid by Contractor.

#### **END OF SECTION**