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# PROJECT MANUAL

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**FOR**

**TOWER SITE CONSTRUCTION  
JEFFERSON COUNTY, WISCONSIN**



A handwritten signature in black ink, appearing to read "A. Ostreng", is written over the bottom portion of the professional seal.

5-12-2021

**May 12, 2021**

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Jefferson County, Wisconsin

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Jefferson County, Wisconsin

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Jefferson County, Wisconsin

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**PALMYRA OLD TOWER**

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END OF SECTION



DOCUMENT 00 11 16

ADVERTISEMENT FOR BIDS

**Project:** Tower Site Construction  
Jefferson County, Wisconsin

**Owner:** Jefferson County  
311 South Center Avenue Rm 111 (*Administrator's Office*)  
Jefferson, WI 53549  
Contact: Benjamin Wehmeier, Administrator

**Architect/Engineer:** Edge Consulting Engineers, Inc.  
624 Water Street  
Prairie du Sac, WI 53578  
Contact: Arlen Ostreng, P.E.  
Phone: (608) 644-1449

To Prospective Bidders:

Sealed bids for the Tower Site Construction – Jefferson County, Wisconsin will be received until **2:00 p.m. on June 15, 2021** at the Jefferson County Administrator's Office located at 311 South Center Avenue, Rm 111, Jefferson, WI 53549. Bids will be publicly opened in the Jefferson County Board Room, Rm 205 located at 311 South Center Avenue, Jefferson, WI 53549 immediately following. The bid opening will also be televised via video conference. Details regarding web access to the virtual option will be posted on Jefferson County's website at a later date. All bids must be hand-delivered or mailed. No faxed or e-mailed bids will be accepted under any circumstances. Each bid price quoted is to be clearly marked on the "Bid Form" included in the bid document. It shall be submitted in a sealed envelope clearly marked as follows: "BID PROPOSAL FOR TOWER SITE CONSTRUCTION – JEFFERSON COUNTY, WI".

**Scope of Work:**

The project scope of work generally consists of the construction of (7) new radio communications site for Jefferson County, Wisconsin. The new sites include (6) existing towers and (1) water tower. Also included is (1) demolition only tower site. Work at the sites generally includes installation of prefabricated precast equipment shelters, backup generator systems, ice bridges, chain link fenced compounds, site grounding systems, and other general site improvements. The prefabricated precast equipment shelters have been previously procured by Jefferson County under a separate contract. However, shelter installation is required under this contract. In addition, one site will require a custom, site built, equipment shelter. See Summary Section 01 10 00 for detailed description of required Scope of Work.

A pre-bid meeting is scheduled for the project on May 25, 2021 @ 10:00am at the Jefferson County Courthouse (County Board Room, Rm 205), 311 South Center Avenue, Jefferson, WI 53549. Attendance at the pre-bid meeting is not mandatory but encouraged.

Each bid must be accompanied by a separate bid bond envelope containing a Bid Bond in a sum equal to five (5%) percent of the full amount of the bid, including all Base Bids (Alternate Bids need not be

included in the Bid Bond amount). The Bid Bond shall be executed by the bidder as principal and by a surety, conditioned that if the principal's bid be accepted and the contract awarded to the principal, the principal, within ten days after notice of award, will execute a contract in accordance with the term of the bid including furnishing all bonds and insurance certificates as required by the contract documents.

**Examination of the Documents:**

Copies of the contract documents, including plans, specifications and bidding instructions shall be obtained via Jefferson County's website: [www.jeffersoncountywi.gov/rfp](http://www.jeffersoncountywi.gov/rfp)  
Questions regarding the documents and/or scope of work shall be directed to the architect/engineer.

**Owner's Right to Reject Bids:**

The Owner reserves the right to reject any and all bids and/or to waive any informality in the bids received and to accept any bid deemed to be most favorable to the interest of Jefferson County. The work, if awarded, shall be completed in accordance with the timeline outlined in the Bid Form.

END OF DOCUMENT

DOCUMENT 00 21 13

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

These Instructions to Bidders modify, change delete from or add to the AIA Document A701-2018 - Instructions to Bidders and other provisions of Bidding Documents and Contract Documents. Where any Article of the AIA Instructions to Bidders is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Instructions to Bidders, the unaltered provisions of that Article, Paragraph, Subparagraph or clause shall remain in effect.

ARTICLE 1 – DEFINITION

Add the following Paragraphs:

1.10 “PROJECT as used in these documents shall mean:

**TOWER SITE CONSTRUCTION  
JEFFERSON COUNTY, WI**

1.11 The term “OWNER” as used in these documents shall mean:

**JEFFERSON COUNTY  
311 SOUTH CENTER AVENUE  
JEFFERSON, WI 53549**

1.12 “ARCHITECT/ENGINEER” and “A/E” as used in these documents shall mean:

**EDGE CONSULTING ENGINEERS, INC.  
624 WATER STREET  
PRAIRIE DU SAC, WI 53578**

ARTICLE 2 – BIDDER’S REPRESENTATIONS: No changes.

ARTICLE 3 – BIDDING DOCUMENTS:

In Subparagraph 3.1.1, delete the sentences, “The deposit will be refunded to Bidders who submit a bona fide Bid and return the bidding documents in good condition within 10 days after receipt of bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder’s deposit will be refunded.”

Delete Subparagraph 3.1.2 in its entirety.

In Subparagraph 3.3.2, delete the first sentence and insert in its place, “No substitution will be considered unless: (1) Written request for approval has been submitted by the Bidder and has been received by the A/E at least 10 days prior to the date for receipt of bids, or (2) written request for approval has been submitted by the successful Bidder and approved in writing by the A/E on AIA Form G710, Architect’s Supplemental Instructions, prior to the installation of such substitutions.”

Revise Subparagraph 3.3.3 to read as follows:

3.3.3 If the A/E approves any proposed substitutions during the bidding period, such approval will be set forth in an addendum.

- .1 Proposed substitutions must be described in detail and supported by substantiating specifications and other data. Identify proposed substitutions by reference to the specific Project Specification section and paragraph related to the substitution. Provide any additional information required by the A/E necessary to determine conformity to specified requirements.
- .2 Under no circumstances will the A/E be required to prove that an item proposed for substitution is not equal to the specified item. The decision of A/E on all requests for substitutions is final.
- .3 The A/E will reject any materials and workmanship, either before or after installation is complete, which is substituted and has not been approved by the A/E in writing.
- .4 Bidders shall not rely upon approvals made in any other manner.”

Delete Subparagraph 3.4.2 in its entirety and replace with the following:

3.4.2 Copies of Addenda will be made available for inspection at the offices of the Owner and Engineer. Copies of the Addenda will be provided to all bidders who have requested to Engineer to be on the Plan Holders List.

#### ARTICLE 4 – BIDDING PROCEDURES:

In Subparagraph 4.1.4, add the following sentences: “All changes shall be made on the bid form. Alterations placed on the exterior of the bid envelope will not be considered.”

In Subparagraph 4.4.2, add the following sentence: “Modifications to the bid shall be made on the Bid Form only.”

#### ARTICLE 5 – CONSIDERATION OF BIDS:

Add the following Subparagraph:

- 5.3.3 The award of contract will be made on the basis of the lowest dollar amount submitted by qualified responsible bidders. The Owner reserves the right to reject any or all bid, to accept an alternate proposal, to waive technicalities; to re-advertise for proposals; and to accept the proposal which in its judgement, is deemed most advantageous for the Owner.

#### ARTICLE 6 – POST BID INFORMATION:

Add the following Subparagraph:

- 6.1.1 If upon review of the submitted Contractor’s Qualification Statement Owner deems the bidder to not be qualified for the project, Owner reserves the right to award project to the next lowest qualified responsible bidder.

ARTICLE 7 – PERFORMANCE BOND AND PAYMENT BOND:

- 7.1.2 The Contractor shall furnish bonds as described below, covering the faithful performance of the Contract and the payments of all obligations arising thereunder. The bonds specified under the Article shall be issued by a bonding company licensed to do business in the state where the construction will take place.
- 7.1.3 Furnish both AIA A312 Performance bond and AIA A312 Payment Bond, each in the amount of 100% of the contract price.

After 7.1.3 add the following Subparagraphs:

- 7.1.4 Bond amounts shall not exceed the single bond limit for the Contractor's bonding company as set forth in the Federal Register current as of the date.
- 7.1.5 The bonds shall be written with such sureties secured through the Contractor's usual sources as may be agreeable to the parties. In addition, the sureties shall be authorized to conduct surety business in the state in which the Project is located and the sureties and any reinsuring companies shall be listed in the current Department of the Treasury circular No. 570 with an underwriting limitation equal to or greater than the penal sum of the bonds to be furnished.
- 7.1.6 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the attorney-in-fact's power of attorney.
- 7.1.7 The Contractor shall submit the bond in triplicate to the Owner not later than 10 days after Notice of Award.

Delete Subparagraph 7.2.1 in its entirety and replace with the following:

- 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than 10 days following the date of Notice of Award.

Delete Subparagraph 7.2.3 in its entirety and replace with the following:

- 7.2.3 The bonds shall be dated on or before the date of the Contract.

ARTICLE 8 – FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR: No changes.

END OF DOCUMENT

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# **AIA® Document A701™ – 2018**

## **Instructions to Bidders**

for the following Project:

*(Name, location, and detailed description)*

Tower Site Construction

### **THE OWNER:**

*(Name, legal status, address, and other information)*

Jefferson County

311 South Center Avenue Rm 111

Jefferson, WI 53549

### **THE ARCHITECT:**

*(Name, legal status, address, and other information)*

Edge Consulting Engineers, Inc.

624 Water Street

Prairie du Sac, WI 53578

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document

## **TABLE OF ARTICLES**

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<b>8</b>	<b>ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS</b>

## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)*



§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

### § 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)*

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

### § 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

#### § 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

**§ 3.3.5** No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

#### **§ 3.4 Addenda**

**§ 3.4.1** Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)*

**§ 3.4.2** Addenda will be available where Bidding Documents are on file.

**§ 3.4.3** Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

**§ 3.4.4** Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

### **ARTICLE 4 BIDDING PROCEDURES**

#### **§ 4.1 Preparation of Bids**

**§ 4.1.1** Bids shall be submitted on the forms included with or identified in the Bidding Documents.

**§ 4.1.2** All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

**§ 4.1.3** Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

**§ 4.1.4** Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

**§ 4.1.5** All requested Alternates shall be bid. If no change in the Base Bid is required, enter “No Change” or as required by the bid form.

**§ 4.1.6** Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder’s refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

**§ 4.1.7** Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent’s authority to bind the Bidder.

**§ 4.1.8** A Bidder shall incur all costs associated with the preparation of its Bid.

#### **§ 4.2 Bid Security**

**§ 4.2.1** Each Bid shall be accompanied by the following bid security:

*(Insert the form and amount of bid security.)*

**§ 4.2.2** The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

**§ 4.2.3** If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 4.2.4** The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning \_\_\_\_\_ days after the opening of Bids, withdraw its Bid and request the return of its bid security.

### **§ 4.3 Submission of Bids**

**§ 4.3.1** A Bidder shall submit its Bid as indicated below:

*(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)*

**§ 4.3.2** Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

**§ 4.3.3** Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

**§ 4.3.4** The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

**§ 4.3.5** A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

### **§ 4.4 Modification or Withdrawal of Bid**

**§ 4.4.1** Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

**§ 4.4.2** Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

**§ 4.4.3** After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

*(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)*

## **ARTICLE 5 CONSIDERATION OF BIDS**

### **§ 5.1 Opening of Bids**

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

### **§ 5.2 Rejection of Bids**

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

### **§ 5.3 Acceptance of Bid (Award)**

**§ 5.3.1** It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

**§ 5.3.2** Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

## **ARTICLE 6 POST-BID INFORMATION**

### **§ 6.1 Contractor's Qualification Statement**

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

### **§ 6.2 Owner's Financial Capability**

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

### **§ 6.3 Submittals**

**§ 6.3.1** After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

**§ 6.3.2** The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

**§ 6.3.3** Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

**§ 6.3.4** Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.



## ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

### § 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

*(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)*

### § 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

## ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.

*(Insert the complete AIA Document number, including year, and Document title.)*

- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.

*(Insert the complete AIA Document number, including year, and Document title.)*

- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

*(Insert the complete AIA Document number, including year, and Document title.)*

- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

*(Insert the date of the E203-2013.)*

**.5 Drawings**

Number	Title	Date
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**.6 Specifications**

Section	Title	Date	Pages
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**.7 Addenda:**

Number	Date	Pages
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**.8 Other Exhibits:**

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

☐ AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:  
*(Insert the date of the E204-2017.)*

☐ The Sustainability Plan:

Title	Date	Pages
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☐

Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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- .9 Other documents listed below:  
*(List here any additional documents that are intended to form part of the Proposed Contract Documents.)*

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DOCUMENT 00 31 00

INFORMATION AVAILABLE TO BIDDERS

1.1 GENERAL

- A. The following documents contain information about existing conditions, which are pertinent to the Work of this Project and are available for the general information of Bidders. The availability of such information shall not relieve any Bidder from responsibility to visit the Project Site, to become familiar with the local conditions under which the Work is to be performed and to correlate the Bidder's observations with the requirements of the Bidding Documents.

1.2 SUMMARY

- A. Document Includes:
  - 1. Geotechnical Report – Jefferson Main Tower

1.3 GEOTECHNICAL INVESTIGATION REPORTS

- A. A copy of the Geotechnical Report, Jefferson Main Tower, Edge Project #27648 dated November 23, 2020, as prepared by Edge Consulting Engineers, Inc. is for Contractor's reference. The Architect/Engineer does not certify its completeness or accuracy. The Contractor may do additional testing and evaluation to verify subsurface conditions. A copy of the report is bound separately from this Project Manual.

END OF DOCUMENT

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DOCUMENT 00 41 13

BID FORM

To: Jefferson County  
Administrator's Office  
311 South Center Avenue, Rm 111  
Jefferson, WI 53549

Project: Tower Site Construction  
Jefferson County, Wisconsin

Bids Due: June 15, 2021 at 2:00 PM

Submitted by: (full name and address)

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1. BASE BIDS

Having examined the site(s) where the Work is to be executed and become familiar with local conditions affecting the cost of Work and carefully examined the Project Manual, the Project Drawings, all other Bidding Documents, Addenda and all matters referred to in the Instructions to Bidders thereto prepared by Edge Consulting Engineers, Inc. for the above mentioned project, we, the undersigned, hereby agree to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of All Work for the individual Base Bid stipulated sums as listed below (Refer to Section 01 10 00 – Summary for Scope of Work description):

**Base Bid 1: Jefferson Main Tower**

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

**Base Bid 2: Johnson Creek**

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

**Base Bid 3: Waterloo**

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

**Base Bid 4: Ixonia**

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

**Base Bid 5: Palmyra**

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

**Base Bid 6: Cambridge**

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

**Base Bid 7: Concord**

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

**Base Bid 8: Palmyra Old Tower**

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

This project is a new construction contract with a Designated Exempt Entity as defined by the Wisconsin Department of Revenue and is thus exempt from State of Wisconsin Sales and Use taxes. Jefferson County will, at the time of contract award, provide Sales and Use Tax Exemption Certificates to the Contractor and its Sub-Contractors awarded the project. Further information regarding the process including what items remain taxable can be found online at the following address: <https://www.revenue.wi.gov/Pages/FAQS/pcs-s-exempt.aspx#:~:text=Form%20S%2D211%2C%20Wisconsin%20Sales,stadium%20and%20premier%20resort%20area>

We have included, the required Bid Bond as required by the Instruction to Bidders.

All applicable Federal, State of Wisconsin and local taxes are included in the Bid Sums.

2. ALTERNATE BIDS

The undersigned further agrees to perform the alternative portions of the work, to be added/deducted from the Base Bids sums, stipulated above for the stipulated sums as listed below (Refer to Section 01 10 00 – Summary for description of work):

**Alternate Bid 1A: Jefferson Main Tower – Diesel UST Removal**

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

3. ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for **(60) sixty** days from the bid closing date.

If this bid is accepted by the Owner within the time period stated above, we will:

- Execute the Agreement within **ten** days of receipt of acceptance of this bid.
- Furnish the required bonds within **ten** days of receipt of acceptance of this bid in the form described in Supplementary Conditions.
- Commence work within the time frame outlined for project completion.

If this bid is accepted within the time stated, and we fail to commence the Work or we fail to provide the required bonds, the bid security shall be forfeited as damages to the Owner by reason of our failure.

In the event our bid is not accepted within the time stated above, the required bid security will be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

4. CONTRACT TIME

If this Bid is accepted, we will:

- Commence Work on or after **July 26, 2021.**
- Mobilize to the site at a mutually agreeable date and work continuously on the project until completion.
- Substantially complete all work on or before **November 12, 2021.**
- Fully Complete (Final Completion) all work on or before **December 10, 2021.**

5. ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

Addendum No. \_\_\_\_\_ Dated: \_\_\_\_\_

6. SUBCONTRACTORS/SUPPLIERS

If awarded this Contract, the Bidder declares the intent to employ the following Subcontractors/Suppliers as listed below:

SUBCONTRACTOR/SUPPLIER NAME	CLASS OF WORK/MATERIAL
	Generator System Supplier
	Electrical & Grounding
	Site/Civil
	Fencing
	Waterloo Shelter Construction
	Diesel UST Removal

**NO SUBSTITUTIONS FROM THE SUBCONTRACTOR/SUPPLIERS LISTED ABOVE WILL BE PERMITTED WITHOUT THE WRITTEN APPROVAL OF THE OWNER & A/E.**

7. REFERENCES

Bidder declares that Owner may contact the following references regarding Bidders performance on prior projects of similar scope (provide (3) minimum):

**Reference (1):**

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

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

Address: \_\_\_\_\_  
(Street, City, County, State, Zip)

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

**Reference (2):**

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

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

Address: \_\_\_\_\_  
(Street, City, County, State, Zip)

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

**Reference (3):**

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

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

Address: \_\_\_\_\_  
(Street, City, County, State, Zip)

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

8. BID FORM SIGNATURES

The Corporate Seal of:

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

Address: \_\_\_\_\_  
(Street, City, County, State, Zip)

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

Signature: \_\_\_\_\_  
(Authorized signing officer) (Title)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF DOCUMENT



DOCUMENT 00 50 00

AGREEMENT

1.1 SUMMARY

- A. Document Includes:
  - 1. Agreement.
- B. Related Documents:
  - 1. Document 00 72 00 - General Conditions - AIA.
  - 2. Document 00 73 00 - Supplementary Conditions - AIA.

1.2 AGREEMENT

- A. AIA Document A101-2017, Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is a Stipulated Sum, forms the basis of Agreement between the Owner and Contractor.
- B. The Agreement form will be provided by the Owner and shall be reviewed and completed by the successful Bidder and submitted to the Owner at the Owner's direction following notification.

- 1.3 The following modifications, changes, deletions or additions will be incorporated into the "AIA Document A101-2017, Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is a Stipulated Sum".

ARTICLE 3 – DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

- A. Dates will be as listed in the Bid Form.

ARTICLE 5 – PAYMENTS

- B. The period covered by each Application for Payment shall be a minimum of one calendar month. Payments will be made by Owner within 65 calendar days of Application for Payment submittal.
- C. Retainage in the amount of five percent (5%) shall be held on each Application for Payment until 50% of the work has been completed. After 50% of the work has been completed, a reduction in retainage may be considered if the architect/engineer certifies the project is proceeding satisfactorily. Likewise, if the engineer/architect certifies the project is not proceeding satisfactorily, retainage may be increased up to 10% of the value of the remaining work.

ARTICLE 6 – DISPUTE RESOLUTION

- A. For any Claim subject to, but not resolved by the initial decision maker pursuant to Section 15.2 of AIA Document A201-2017 the method of binding dispute resolution shall be by litigation in a court of competent jurisdiction.

END OF DOCUMENT



# AIA® Document A101® – 2017

## Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

**AGREEMENT** made as of the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_  
(In words, indicate day, month and year.)

**BETWEEN** the Owner:  
(Name, legal status, address and other information)

and the Contractor:  
(Name, legal status, address and other information)

for the following Project:  
(Name, location and detailed description)

The Architect:  
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement.

AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

The Owner and Contractor agree as follows.

## TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS

## EXHIBIT A INSURANCE AND BONDS

### ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

### ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

### ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

*(Check one of the following boxes.)*

- ☐ The date of this Agreement.
- ☐ A date set forth in a notice to proceed issued by the Owner.
- ☐ Established as follows:  
*(Insert a date or a means to determine the date of commencement of the Work.)*

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

#### § 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

*(Check one of the following boxes and complete the necessary information.)*

- ☐ Not later than ( ) calendar days from the date of commencement of the Work.

☐ By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work

Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

#### ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ( \$ ), subject to additions and deductions as provided in the Contract Documents.

#### § 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item

Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.  
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item

Price

Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:  
(Identify each allowance.)

Item

Price

#### § 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item

Units and Limitations

Price per Unit (\$0.00)

#### § 4.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

#### § 4.6 Other:

(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the       day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the       day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than (    ) days after the Architect receives the Application for Payment.

*(Federal, state or local laws may require payment within a certain period of time.)*

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and
- .3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201–2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201–2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

### § 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

*(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)*



**§ 5.1.7.1.1** The following items are not subject to retainage:

*(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)*

**§ 5.1.7.2** Reduction or limitation of retainage, if any, shall be as follows:

*(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)*

**§ 5.1.7.3** Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

*(Insert any other conditions for release of retainage upon Substantial Completion.)*

**§ 5.1.8** If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201-2017.

**§ 5.1.9** Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

## **§ 5.2 Final Payment**

**§ 5.2.1** Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201-2017, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

**§ 5.2.2** The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

## **§ 5.3 Interest**

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

\_\_\_\_\_ %

## **ARTICLE 6 DISPUTE RESOLUTION**

### **§ 6.1 Initial Decision Maker**

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201-2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

*(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

## § 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box.)*

- ☐ Arbitration pursuant to Section 15.4 of AIA Document A201–2017
- ☐ Litigation in a court of competent jurisdiction
- ☐ Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

## ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:

*(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)*

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

## ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

*(Name, address, email address, and other information)*

§ 8.3 The Contractor's representative:

*(Name, address, email address, and other information)*

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.



## § 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

*(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)*

§ 8.7 Other provisions:

## ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- .3 AIA Document A201™–2017, General Conditions of the Contract for Construction
- .4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:

*(Insert the date of the E203-2013 incorporated into this Agreement.)*

- .5 Drawings

Number	Title	Date
--------	-------	------

- .6 Specifications

Section	Title	Date	Pages
---------	-------	------	-------

- .7 Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .8 Other Exhibits:

*(Check all boxes that apply and include appropriate information identifying the exhibit where required.)*

- ☐ AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:  
*(Insert the date of the E204-2017 incorporated into this Agreement.)*

☐ The Sustainability Plan:

Title	Date	Pages
-------	------	-------

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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**.9 Other documents, if any, listed below:**

*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)*

This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
**OWNER** (Signature)

\_\_\_\_\_  
**CONTRACTOR** (Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)



# AIA Document A101® – 2017 Exhibit A

## Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_  
(In words, indicate day, month and year.)

for the following **PROJECT**:  
(Name and location or address)

**THE OWNER:**  
(Name, legal status and address)

**THE CONTRACTOR:**  
(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201®–2017 contains additional insurance provisions.

### TABLE OF ARTICLES

- A.1 GENERAL
- A.2 OWNER'S INSURANCE
- A.3 CONTRACTOR'S INSURANCE AND BONDS
- A.4 SPECIAL TERMS AND CONDITIONS

#### ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

#### ARTICLE A.2 OWNER'S INSURANCE

##### § A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

##### § A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

##### § A.2.3 Required Property Insurance

**§ A.2.3.1** Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's

property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

**§ A.2.3.1.1 Causes of Loss.** The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:

*(Indicate below the cause of loss and any applicable sub-limit.)*

Cause of Loss	Sub-Limit
---------------	-----------

**§ A.2.3.1.2 Specific Required Coverages.** The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:

*(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)*

Coverage	Sub-Limit
----------	-----------

**§ A.2.3.1.3** Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

**§ A.2.3.1.4 Deductibles and Self-Insured Retentions.** If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

**§ A.2.3.2 Occupancy or Use Prior to Substantial Completion.** The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

**§ A.2.3.3 Insurance for Existing Structures**

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

**§ A.2.4 Optional Extended Property Insurance.**

The Owner shall purchase and maintain the insurance selected and described below.

*(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)*



- ☐ **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance**, to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.
- ☐ **§ A.2.4.2 Ordinance or Law Insurance**, for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.
- ☐ **§ A.2.4.3 Expediting Cost Insurance**, for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.
- ☐ **§ A.2.4.4 Extra Expense Insurance**, to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.
- ☐ **§ A.2.4.5 Civil Authority Insurance**, for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.
- ☐ **§ A.2.4.6 Ingress/Egress Insurance**, for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.
- ☐ **§ A.2.4.7 Soft Costs Insurance**, to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

**§ A.2.5 Other Optional Insurance.**

The Owner shall purchase and maintain the insurance selected below.

*(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)*

- ☐ **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information.  
*(Indicate applicable limits of coverage or other conditions in the fill point below.)*

☐ **§ A.2.5.2 Other Insurance**

*(List below any other insurance coverage to be provided by the Owner and any applicable limits.)*

**Coverage**

**Limits**

**ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS**

**§ A.3.1 General**

**§ A.3.1.1 Certificates of Insurance.** The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy or policies.

**§ A.3.1.2 Deductibles and Self-Insured Retentions.** The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

**§ A.3.1.3 Additional Insured Obligations.** To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect, and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04.

**§ A.3.2 Contractor's Required Insurance Coverage**

**§ A.3.2.1** The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:  
*(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)*

**§ A.3.2.2 Commercial General Liability**

**§ A.3.2.2.1** Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than \_\_\_\_\_ ( \$ \_\_\_\_\_ ) each occurrence, \_\_\_\_\_ ( \$ \_\_\_\_\_ ) general aggregate, and \_\_\_\_\_ ( \$ \_\_\_\_\_ ) aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal injury and advertising injury;
- .3 damages because of physical damage to, or destruction of, tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

**§ A.3.2.2.2** The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

- .1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.
- .2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
- .3 Claims for bodily injury other than to employees of the insured.
- .4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured
- .5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
- .6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
- .7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
- .8 Claims related to roofing, if the Work involves roofing.
- .9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
- .10 Claims related to earth subsidence or movement, where the work involves such hazards.
- .11 Claims related to explosion, collapse, and underground hazards, where the Work involves such hazards.

**§ A.3.2.3** Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than \_\_\_\_\_ ( \$ ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

**§ A.3.2.4** The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

**§ A.3.2.5** Workers' Compensation at statutory limits.

**§ A.3.2.6** Employers' Liability with policy limits not less than \_\_\_\_\_ ( \$ ) each accident, \_\_\_\_\_ ( \$ ) each employee, and \_\_\_\_\_ ( \$ ) policy limit.

**§ A.3.2.7** Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

**§ A.3.2.8** If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than \_\_\_\_\_ ( \$ ) per claim and \_\_\_\_\_ ( \$ ) in the aggregate.

**§ A.3.2.9** If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than \_\_\_\_\_ ( \$ ) per claim and \_\_\_\_\_ ( \$ ) in the aggregate.

**§ A.3.2.10** Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than \_\_\_\_\_ ( \$ ) per claim and \_\_\_\_\_ ( \$ ) in the aggregate.

**§ A.3.2.11** Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than \_\_\_\_\_ ( \$ ) per claim and \_\_\_\_\_ ( \$ ) in the aggregate.

**§ A.3.2.12** Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than \_\_\_\_\_ ( \$ ) per claim and \_\_\_\_\_ ( \$ ) in the aggregate.



### § A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

*(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)*

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

*(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)*

- ☐ § A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below.

*(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)*

- ☐ § A.3.3.2.2 Railroad Protective Liability Insurance, with policy limits of not less than \_\_\_\_\_ ( \$\_\_ ) per claim and \_\_\_\_\_ ( \$\_\_ ) in the aggregate, for Work within fifty (50) feet of railroad property.
- ☐ § A.3.3.2.3 Asbestos Abatement Liability Insurance, with policy limits of not less than \_\_\_\_\_ ( \$\_\_ ) per claim and \_\_\_\_\_ ( \$\_\_ ) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.
- ☐ § A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.
- ☐ § A.3.3.2.5 Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.
- ☐ § A.3.3.2.6 Other Insurance  
*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

Coverage

Limits



#### § A.3.4 Performance Bond and Payment Bond

The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:

*(Specify type and penal sum of bonds.)*

Type	Penal Sum (\$0.00)
Payment Bond	
Performance Bond	

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

#### ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

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DOCUMENT 00 72 00

GENERAL CONDITIONS

1.1 SUMMARY

A. Document Includes:

1. General Conditions.

B. Related Documents:

1. Document 00 50 00 - Agreement - AIA.
2. Document 00 73 00 - Supplementary Conditions - AIA.

1.2 GENERAL CONDITIONS

- A. AIA Document A201-2017, General Conditions of the Contract for Construction, is the General Conditions of the Contract.

1.3 SUPPLEMENTARY CONDITIONS

- A. Refer to Document 00 73 00 for modifications to General Conditions.

END OF DOCUMENT

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# **AIA** Document A201® – 2017

## **General Conditions of the Contract for Construction**

### **for the following PROJECT:**

*(Name and location or address)*

Tower Site Construction  
Jefferson County, WI

### **THE OWNER:**

*(Name, legal status and address)*

Jefferson County  
311 South Center Avenue Rm 111  
Jefferson, WI 53549

### **THE ARCHITECT:**

*(Name, legal status and address)*

Edge Consulting Engineers, Inc.  
624 Water Street  
Prairie du Sac, WI 53578

This document has important legal consequences.

Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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## **ARTICLE 1 GENERAL PROVISIONS**

### **§ 1.1 Basic Definitions**

#### **§ 1.1.1 The Contract Documents**

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

#### **§ 1.1.2 The Contract**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### **§ 1.1.3 The Work**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### **§ 1.1.4 The Project**

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

#### **§ 1.1.5 The Drawings**

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

#### **§ 1.1.6 The Specifications**

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### **§ 1.1.7 Instruments of Service**

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### **§ 1.1.8 Initial Decision Maker**

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

### **§ 1.2 Correlation and Intent of the Contract Documents**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.



**§ 1.2.1.1** The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### **§ 1.3 Capitalization**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

### **§ 1.4 Interpretation**

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service**

**§ 1.5.1** The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

### **§ 1.6 Notice**

**§ 1.6.1** Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

**§ 1.6.2** Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

### **§ 1.7 Digital Data Use and Transmission**

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

### **§ 1.8 Building Information Models Use and Reliance**

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™-2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™-2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk

and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

## **ARTICLE 2 OWNER**

### **§ 2.1 General**

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

**§ 2.1.2** The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### **§ 2.2 Evidence of the Owner's Financial Arrangements**

**§ 2.2.1** Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

**§ 2.2.3** After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

**§ 2.2.4** Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

### **§ 2.3 Information and Services Required of the Owner**

**§ 2.3.1** Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

**§ 2.3.2** The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

**§ 2.3.3** If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

**§ 2.3.4** The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

**§ 2.3.5** The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

**§ 2.3.6** Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

#### **§ 2.4 Owner's Right to Stop the Work**

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

#### **§ 2.5 Owner's Right to Carry Out the Work**

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

### **ARTICLE 3 CONTRACTOR**

#### **§ 3.1 General**

**§ 3.1.1** The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

**§ 3.1.2** The Contractor shall perform the Work in accordance with the Contract Documents.

**§ 3.1.3** The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

#### **§ 3.2 Review of Contract Documents and Field Conditions by Contractor**

**§ 3.2.1** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

**§ 3.2.2** Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in



such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

**§ 3.2.3** The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

### **§ 3.3 Supervision and Construction Procedures**

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

### **§ 3.4 Labor and Materials**

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 3.4.2** Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### **§ 3.5 Warranty**

**§ 3.5.1** The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or

equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

**§ 3.5.2** All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

### **§ 3.6 Taxes**

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### **§ 3.7 Permits, Fees, Notices and Compliance with Laws**

**§ 3.7.1** Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

**§ 3.7.2** The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

**§ 3.7.3** If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### **§ 3.7.4 Concealed or Unknown Conditions**

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

**§ 3.7.5** If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### **§ 3.8 Allowances**

**§ 3.8.1** The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

**§ 3.8.2** Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

**§ 3.8.3** Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### **§ 3.9 Superintendent**

**§ 3.9.1** The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

**§ 3.9.2** The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 3.9.3** The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

### **§ 3.10 Contractor's Construction and Submittal Schedules**

**§ 3.10.1** The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

**§ 3.10.2** The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

**§ 3.10.3** The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

### **§ 3.11 Documents and Samples at the Site**

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### **§ 3.12 Shop Drawings, Product Data and Samples**

**§ 3.12.1** Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

**§ 3.12.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.



**§ 3.12.3** Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

**§ 3.12.4** Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

**§ 3.12.5** The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

**§ 3.12.6** By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

**§ 3.12.7** The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

**§ 3.12.8** The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

**§ 3.12.9** The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

**§ 3.12.10** The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

**§ 3.12.10.1** If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

**§ 3.12.10.2** If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

### **§ 3.13 Use of Site**

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### **§ 3.14 Cutting and Patching**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

### **§ 3.15 Cleaning Up**

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

### **§ 3.16 Access to Work**

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

### **§ 3.17 Royalties, Patents and Copyrights**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

### **§ 3.18 Indemnification**

**§ 3.18.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

**§ 3.18.2** In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages,

compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

## **ARTICLE 4 ARCHITECT**

### **§ 4.1 General**

**§ 4.1.1** The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

**§ 4.1.2** Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

### **§ 4.2 Administration of the Contract**

**§ 4.2.1** The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

**§ 4.2.2** The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

**§ 4.2.3** On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

### **§ 4.2.4 Communications**

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

**§ 4.2.5** Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 4.2.6** The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

**§ 4.2.7** The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of



other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.8** The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

**§ 4.2.9** The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

**§ 4.2.10** If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

**§ 4.2.11** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

**§ 4.2.12** Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

**§ 4.2.13** The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

**§ 4.2.14** The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## **ARTICLE 5 SUBCONTRACTORS**

### **§ 5.1 Definitions**

**§ 5.1.1** A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

**§ 5.1.2** A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### **§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work**

**§ 5.2.1** Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

**§ 5.2.2** The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

**§ 5.2.3** If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

**§ 5.2.4** The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

### **§ 5.3 Subcontractual Relations**

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

### **§ 5.4 Contingent Assignment of Subcontracts**

**§ 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

**§ 5.4.2** Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

**§ 5.4.3** Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

## **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts**

**§ 6.1.1** The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.



**§ 6.1.2** When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

**§ 6.1.3** The Owner shall provide for coordination of the activities of the Owner’s own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

**§ 6.1.4** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner’s own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

## **§ 6.2 Mutual Responsibility**

**§ 6.2.1** The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor’s construction and operations with theirs as required by the Contract Documents.

**§ 6.2.2** If part of the Contractor’s Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor’s Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner’s or Separate Contractor’s completed or partially completed construction is fit and proper to receive the Contractor’s Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

**§ 6.2.3** The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor’s delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor’s delays, improperly timed activities, damage to the Work or defective construction.

**§ 6.2.4** The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

**§ 6.2.5** The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

## **§ 6.3 Owner’s Right to Clean Up**

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## **ARTICLE 7 CHANGES IN THE WORK**

### **§ 7.1 General**

**§ 7.1.1** Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

**§ 7.1.2** A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

**§ 7.1.3** Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

## **§ 7.2 Change Orders**

**§ 7.2.1** A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

## **§ 7.3 Construction Change Directives**

**§ 7.3.1** A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

**§ 7.3.2** A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

**§ 7.3.3** If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

**§ 7.3.4** If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

**§ 7.3.5** If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

**§ 7.3.6** Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

**§ 7.3.7** A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

**§ 7.3.8** The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**§ 7.3.9** Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

**§ 7.3.10** When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### **§ 7.4 Minor Changes in the Work**

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

### **ARTICLE 8 TIME**

#### **§ 8.1 Definitions**

**§ 8.1.1** Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

**§ 8.1.2** The date of commencement of the Work is the date established in the Agreement.

**§ 8.1.3** The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

**§ 8.1.4** The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

#### **§ 8.2 Progress and Completion**

**§ 8.2.1** Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

**§ 8.2.2** The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

**§ 8.2.3** The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

#### **§ 8.3 Delays and Extensions of Time**

**§ 8.3.1** If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

**§ 8.3.2** Claims relating to time shall be made in accordance with applicable provisions of Article 15.

**§ 8.3.3** This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## **ARTICLE 9 PAYMENTS AND COMPLETION**

### **§ 9.1 Contract Sum**

**§ 9.1.1** The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

**§ 9.1.2** If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

### **§ 9.2 Schedule of Values**

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

### **§ 9.3 Applications for Payment**

**§ 9.3.1** At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

**§ 9.3.1.1** As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

**§ 9.3.1.2** Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

**§ 9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

**§ 9.3.3** The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

### **§ 9.4 Certificates for Payment**

**§ 9.4.1** The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or



(3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

**§ 9.4.2** The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

### **§ 9.5 Decisions to Withhold Certification**

**§ 9.5.1** The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

**§ 9.5.2** When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

**§ 9.5.3** When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

**§ 9.5.4** If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

### **§ 9.6 Progress Payments**

**§ 9.6.1** After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

**§ 9.6.2** The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

**§ 9.6.3** The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

**§ 9.6.4** The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

**§ 9.6.5** The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

**§ 9.6.6** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

**§ 9.6.7** Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

**§ 9.6.8** Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

### **§ 9.7 Failure of Payment**

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

### **§ 9.8 Substantial Completion**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

**§ 9.8.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 9.8.3** Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

**§ 9.8.4** When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

### **§ 9.9 Partial Occupancy or Use**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

### **§ 9.10 Final Completion and Final Payment**

**§ 9.10.1** Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.



**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 Safety Precautions and Programs**

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

### **§ 10.2 Safety of Persons and Property**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

**§ 10.2.2** The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

**§ 10.2.3** The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

**§ 10.2.4** When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

**§ 10.2.5** The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.1.8.



**§ 10.2.6** The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

**§ 10.2.7** The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

**§ 10.2.8 Injury or Damage to Person or Property**

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

**§ 10.3 Hazardous Materials and Substances**

**§ 10.3.1** The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

**§ 10.3.2** Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

**§ 10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

**§ 10.3.4** The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

**§ 10.3.5** The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

**§ 10.3.6** If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

#### **§ 10.4 Emergencies**

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

### **ARTICLE 11 INSURANCE AND BONDS**

#### **§ 11.1 Contractor's Insurance and Bonds**

**§ 11.1.1** The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

**§ 11.1.2** The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

**§ 11.1.3** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

**§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance.** Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

#### **§ 11.2 Owner's Insurance**

**§ 11.2.1** The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

**§ 11.2.2 Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

**§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by

an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

### **§ 11.3 Waivers of Subrogation**

**§ 11.3.1** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

**§ 11.3.2** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

### **§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance**

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

### **§ 11.5 Adjustment and Settlement of Insured Loss**

**§ 11.5.1** A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

**§ 11.5.2** Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

## **ARTICLE 12 UNCOVERING AND CORRECTION OF WORK**

### **§ 12.1 Uncovering of Work**

**§ 12.1.1** If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

**§ 12.1.2** If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract



Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

## **§ 12.2 Correction of Work**

### **§ 12.2.1 Before Substantial Completion**

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

### **§ 12.2.2 After Substantial Completion**

**§ 12.2.2.1** In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

**§ 12.2.2.2** The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 12.2.2.3** The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

**§ 12.2.3** The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

**§ 12.2.4** The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

**§ 12.2.5** Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

## **§ 12.3 Acceptance of Nonconforming Work**

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## **ARTICLE 13 MISCELLANEOUS PROVISIONS**

### **§ 13.1 Governing Law**

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

### **§ 13.2 Successors and Assigns**

**§ 13.2.1** The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in

Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

**§ 13.2.2** The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

### **§ 13.3 Rights and Remedies**

**§ 13.3.1** Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

**§ 13.3.2** No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

### **§ 13.4 Tests and Inspections**

**§ 13.4.1** Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

**§ 13.4.2** If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

**§ 13.4.3** If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

**§ 13.4.4** Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

**§ 13.4.5** If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

**§ 13.4.6** Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### **§ 13.5 Interest**

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

## **ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT**

### **§ 14.1 Termination by the Contractor**

**§ 14.1.1** The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

**§ 14.1.2** The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

**§ 14.1.3** If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

**§ 14.1.4** If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

## **§ 14.2 Termination by the Owner for Cause**

**§ 14.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or Suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

**§ 14.2.2** When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

**§ 14.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 14.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

## **§ 14.3 Suspension by the Owner for Convenience**

**§ 14.3.1** The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

**§ 14.3.2** The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

#### **§ 14.4 Termination by the Owner for Convenience**

**§ 14.4.1** The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

**§ 14.4.2** Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

**§ 14.4.3** In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

### **ARTICLE 15 CLAIMS AND DISPUTES**

#### **§ 15.1 Claims**

##### **§ 15.1.1 Definition**

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

##### **§ 15.1.2 Time Limits on Claims**

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

##### **§ 15.1.3 Notice of Claims**

**§ 15.1.3.1** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

**§ 15.1.3.2** Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

##### **§ 15.1.4 Continuing Contract Performance**

**§ 15.1.4.1** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

**§ 15.1.4.2** The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.



### **§ 15.1.5 Claims for Additional Cost**

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

### **§ 15.1.6 Claims for Additional Time**

**§ 15.1.6.1** If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

**§ 15.1.6.2** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

### **§ 15.1.7 Waiver of Claims for Consequential Damages**

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

### **§ 15.2 Initial Decision**

**§ 15.2.1** Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

**§ 15.2.2** The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

**§ 15.2.3** In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

**§ 15.2.4** If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.



**§ 15.2.5** The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

**§ 15.2.6** Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

**§ 15.2.6.1** Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

**§ 15.2.7** In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ 15.2.8** If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

### **§ 15.3 Mediation**

**§ 15.3.1** Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

**§ 15.3.2** The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

**§ 15.3.3** Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

**§ 15.3.4** The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

### **§ 15.4 Arbitration**

**§ 15.4.1** If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

**§ 15.4.1.1** A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand

for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

**§ 15.4.2** The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

**§ 15.4.3** The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

**§ 15.4.4 Consolidation or Joinder**

**§ 15.4.4.1** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

**§ 15.4.4.2** Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

**§ 15.4.4.3** The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

DOCUMENT 00 73 00

SUPPLEMENTARY CONDITIONS

1.1 SUMMARY

- A. Document Includes:
  - 1. Supplementary Conditions.
- B. Related Documents:
  - 1. Document 00 41 13 - Bid Form.
  - 2. Document 00 50 00 - Agreement - AIA.
  - 3. Document 00 72 00 - General Conditions - AIA.

1.2 SUPPLEMENTARY CONDITIONS

- A. These Supplementary Conditions modify the General Conditions of the Contract for Construction, AIA Document A201-2017, and other provisions of the Contract Documents as indicated below. All provisions which are not so modified remain in full force and effect.
- B. The terms used in these Supplementary Conditions which are defined in the General Conditions of the Contract for Construction, AIA Document A201-2017, have the meanings assigned to them in the General Conditions.

ARTICLE 1.1 - BASIC DEFINITIONS

Add the following subparagraphs:

1.1.9	Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
1.1.10	Furnish: To supply and deliver, unload, inspect for damage.
1.1.11	Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, and make ready for use.
1.1.12	Provide: To furnish and install.

ARTICLE 1.2 - CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following subparagraph:

1.2.4	Sections of Division 01 - General Requirements govern the execution of the work of all sections of the specifications.
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## ARTICLE 3.5 – WARRANTY

Add the following subparagraph:

3.5.1	Contractor shall provide a minimum overall <b>one year</b> warranty for all work performed and materials supplied under this contract from the date of final completion. Longer term warranties shall apply for individual items of the project as set forth in the specifications.
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## ARTICLE 8 - TIME

Add the following subparagraph:

8.1.5	Contract Time is identified in the Agreement.
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## ARTICLE 11.1 - CONTRACTOR’S LIABILITY INSURANCE

The Contractor and any and all Sub-Contractors shall carry at minimum limits of liability insurance coverage amounts as listed below, or greater where required by State and/or Federal Laws and Regulations:

1. Worker’ Compensation:
  - a. State Statutory Limit.
  - b. Employer’s Liability: \$500,000 per Accident.
2. Applicable Federal (e.g. Longshoreman’s):
  - a. Statutory
3. Comprehensive or Commercial General Liability:
  - a. Personal Injury – each person: \$1,000,000
  - b. Personal Injury – each occurrence: \$1,000,000
  - c. Personal Injury – aggregate: \$1,000,000
  - d. Personal Damage – each occurrence: \$1,000,000
4. Contractual Liability:
  - a. Bodily Injury and Property Damage: \$1,000,000 Combined Single Limit (CSL) Each Occurrence Minimum \$2,000,000 Aggregate or per Project Endorsement
5. Business Auto Liability (including owned, non-owned and hired vehicles)
  - a. Personal Injury – each person: \$1,000,000
  - b. Personal Injury – each occurrence: \$1,000,000
  - c. Personal Damage – each occurrence: \$1,000,000
6. Umbrella Liability:
  - a. \$5,000,000 Each Occurrence
  - b. \$5,000,000 Annual Aggregate
  - c. Maximum self-insured retention of \$25,000

Tower Site Construction  
Jefferson County, Wisconsin

The above insurance shall cover the contractor's employees, the public and Jefferson County employees while in the buildings and on the grounds of Jefferson County.

CONTRACTOR shall include the OWNER and the ENGINEER by endorsement as additional insured under the CONTRACTOR's General Liability Policy and Umbrella Liability Policies. These endorsements shall be listed on the furnished certificates of insurance prior to commencing work.

Add the following subparagraphs:

11.1.2.1	The Contractor shall furnish bonds to the Owner in the following amounts:
	Furnish a 100 percent Performance Bond on AIA Document A312 bond form.
	Furnish a 100 percent Payment Bond on AIA Document A312 bond form.

ARTICLE 15.2 – INITIAL DECISION

In subparagraph 15.2.5 – Delete references to mediation.

Delete subparagraph 15.2.6 and 15.2.6.1 in their entirety.

ARTICLE 15.3 – MEDIATION

Delete the entire article including all subparagraphs.

ARTICLE 15.4 – ARBITRATION

Delete the entire article including all subparagraphs.

END OF DOCUMENT

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SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.1 GENERAL SUMMARY OF WORK

- A. The project scope of work generally consists of the construction of (7) new radio communications site for Jefferson County, Wisconsin. The new sites include (6) existing towers and (1) water tower. Also included is (1) demolition only tower site. Work at the sites generally includes installation of prefabricated precast equipment shelters, backup generator systems, ice bridges, chain link fenced compounds, site grounding systems, and other general site improvements. The prefabricated precast equipment shelters have been previously procured by Jefferson County under a separate contract. However, shelter installation is required under this contract. In addition, one site will require a custom, site built, equipment shelter.
- B. Work Included: Provide labor, materials, articles, equipment, incidentals, items, tools, services, supplies, methods, operations, skills in such quantities as may be necessary to complete Project within intent of Contract Documents.

1.2 SITE LOCATIONS

- A. Jefferson Main Tower: 345 E Ogden St, Jefferson, WI 53549
- B. Johnson Creek: N6131 County Road Y, Johnson Creek, WI 53038
- C. Waterloo: Herron Ct (end of court), Waterloo, WI 53594
- D. Ixonia: W1225 Marietta Ave, Ixonia, WI 53036
- E. Palmyra: N2562 State Road 106, Jefferson, WI 53549
- F. Cambridge: 3 Lagoon Dr, Cambridge, WI 53523
- G. Concord: W2270 County Road B, Watertown, WI 53094
- H. Palmyra Old Tower: N 303 Tower Road, Palmyra, WI 53156

1.3 DESCRIPTION OF THE WORK

- A. **Base Bid 1: Jefferson Main Tower**
  - 1. The project scope of work generally consists of site work and includes installation of a foundation system for a prefabricated precast equipment shelter, LP fueled backup generator system, ice bridge, vertical transmission line ladder, site grounding system, chain-link fenced compound, and other general site improvements.



2. The existing 150' self-support tower will remain. Contractor shall provide and install a vertical transmission line ladder for installation of the County's coax and waveguides.
3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall install a 12'x27' prefabricated precast equipment shelter at the site. The shelter has been pre-purchased by Owner and will be delivered to within the "last mile" of the project site by Others using an over the road tractor trailer. Contractor is responsible for coordinating delivery, off-loading the shelter from the delivery vehicle, transporting from the delivery point to the tower site and installing it on the Contractor installed shelter foundation. Contractor is also responsible for hookup of all utility connections/services to the shelter to insure a complete and fully functional shelter.
5. Contractor shall provide and install a 45kW/45kVA 120/240V 1Phase LP fueled backup generator system, including transfer switch installed within the shelter. All associated electrical work, inside and outside the shelter, shall be completed by Contractor to insure a fully functional generator system.
6. Contractor shall relocate the existing 1000 gal. LP fuel tank as shown on the drawings. Contractor shall also provide and install a hardwired LP tank level monitor system. LP fuel will be supplied by Owner.
7. Contractor shall provide and install a new 120/240V, 1Phase, 200A electric service and associated conduit and wiring runs. The new electric service will be applied for directly by the Owner. Owner will be responsible to pay for any required connection fees directly to the electric utility provider. Contractor shall include all required conduits, conductors and other items from the transformer into the site as required by the electric utility provider.
8. Contractor shall install a new single electric meter socket on exterior of the shelter. All necessary electrical, grounding and bonding work, inside and outside the shelter, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.
9. Once the new radio system is operational, Contractor shall demolish and remove the existing equipment building.
10. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on-site and off-site areas disturbed by the project to pre-existing conditions.

**B. Alternate Bid 1A: Jefferson Main Tower – UST Removal**

1. Remove and dispose of the existing diesel underground storage tank (UST). Tank size is unknown and shall be assumed to be less than 1000 gallon. Removal work to be completed by certified tank remover and include initial assessment, permitting, soil testing, removal, cleaning, waste residue and tank disposal and follow-up paperwork with State of Wisconsin. Contractor can assume no soil or groundwater contamination will be encountered. If soil and/or groundwater contamination is encountered, work to address these items will be considered additional scope.

2. North Shore Environmental Construction (262) 255-4468 [www.nsecinc.com](http://www.nsecinc.com) has previously reviewed the site and may be a potential sub-contractor for this work.

**C. Base Bid 2: Johnson Creek**

1. The project scope of work generally consists of site work and includes installing a foundation system for a prefabricated precast equipment shelter, LP fueled backup generator system, ice bridge, vertical transmission line ladder, site grounding system, chain-link fenced compound expansion, utility rack gravel driveway access and other general site improvements.
2. The existing 195' self-support tower will remain. Contractor shall provide and install a vertical transmission line ladder for installation of the County's coax and waveguides.
3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall install a 12'x16' prefabricated precast equipment shelter at the site. The shelter has been pre-purchased by Owner and will be delivered within the "last mile" of the project site by Others using an over the road tractor trailer. Contractor is responsible for coordinating delivery, off-loading the shelter from the delivery vehicle, transporting from the delivery point to the tower site and installing it on the Contractor installed shelter foundation. Contractor is also responsible for hookup of all utility connections/services to the shelter to insure a complete and fully functional shelter.
5. Contractor shall install a 22kW/22kVA 120/240V 1Phase LP fueled backup generator system at the site. The generator and transfer switch will be provided by Owner. Contractor shall install both items including underground conduits, concrete pad, LP fuel line, electrical wiring, alarm wiring and connection to the site ground system. Contractor shall also assist with start-up and commissioning of the overall system.
6. Contractor shall provide and install a LP fuel system which generally includes: 500 gal. LP tank (provided by Owner), hard wired remote LP tank level monitor system, and LP fuel piping. LP fuel will be supplied by Owner.
7. Contractor shall provide and install a multi-meter utility rack which includes: 120/240V, 1Phase, 600A electric service, (4) electric meter sockets, and associated conduit and wiring runs. The new electric service will be applied for directly by the Owner. Owner will be responsible to pay for any required connection fees directly to the electric utility provider. Contractor shall include all required conduits, conductors and other items from the transformer into the site as required by the electric utility provider.
8. Contractor shall install (2) new 120/240V, 1Phase, 200A electric services. One from the utility rack to the Jefferson County equipment shelter and one to the existing Bertram Communication's shelter. All necessary electrical, grounding and bonding work, inside and outside the shelters, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.

9. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on and off-site areas disturbed by the project to pre-existing conditions.

**D. Base Bid 3: Waterloo**

1. The project scope of work generally consists of site work and includes construction of a custom, site built, equipment building. It also includes installing a LP fueled backup generator system, ice bridge, site grounding system, chain-link fenced compound and other general site improvements.
2. The existing 60' self-support tower will remain.
3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall construct a custom, site built, 13'x18' masonry block equipment shelter at the site complete with electrical and HVAC systems and other devices and finishes as detailed in the plans. Contractor is also responsible for hookup of all utility connections/services to insure a complete and fully functional shelter.
5. Contractor shall relocate and reinstall the existing 17kW/17kVA 120/240V 1Phase LP fueled backup generator system at the site. The generator and transfer switch are existing and will be provided by Owner. Contractor shall install both items including underground conduits, concrete pad, LP fuel line, electrical wiring, alarm wiring and connection to the site ground system. Contractor shall also assist with start-up and commissioning of the overall system.
6. Contractor shall relocate and reinstall the existing (2) 120 gal. LP fuel tanks as shown on the drawings. Contractor shall also provide and install a hardwired LP tank level monitor system. LP fuel will be supplied by Owner.
7. Contractor shall install a new 120/240V, 1Phase, 200A electric service and associated conduit and wiring runs. The new electric service will be applied for directly by the Owner. Owner will be responsible to pay for any required connection fees directly to the electric utility provider. Contractor shall include all required conduits, conductors and other items from the transformer into the site as required by the electric utility provider.
8. Contractor shall install a new single electric meter socket on exterior of the shelter. All necessary electrical, grounding and bonding work, inside and outside the shelter, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.
9. Once the new radio system is operational, Contractor shall demolish and remove the existing equipment building.
10. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on and off-site areas disturbed by the project to pre-existing conditions.

**E. Base Bid 4: Ixonia**

1. The project scope of work generally consists of site work and includes installing a LP fueled backup generator system, site grounding system, chain-link fenced compound expansion and other general site improvements.
2. The existing 128' water tower will remain.

3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall install a 22kW/22kVA 120/240V 1Phase LP fueled backup generator system at the site. The generator and transfer switch will be provided by Owner. Contractor shall install both items including underground conduits, concrete pad, LP fuel line, electrical wiring, alarm wiring and connection to the site ground system. Contractor shall also assist with start-up and commissioning of the overall system.
5. Contractor shall provide and install a LP fuel system which generally includes: 500 gal. LP tank (provided by Owner), hard wired remote LP tank level monitor system, and LP fuel piping. LP fuel will be supplied by Owner.
6. Contractor shall reconfigure the existing 120/240V, 1Phase, 100A electric service to include a new service disconnect with surge protection device. Contractor shall include all required conduits, conductors, devices and other items as required complete the project. All specified electrical, grounding and bonding work, inside and outside the shelter, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.
7. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on and off-site areas disturbed by the project to pre-existing conditions.

**F. Base Bid 5: Palmyra**

1. The project scope of work generally consists of site work and includes installing a foundation system for a prefabricated precast equipment shelter, LP fueled backup generator system, ice bridge, site grounding system and other general site improvements.
2. The existing 430' guyed tower will remain.
3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall install a 12'x16' prefabricated precast equipment shelter at the site. The shelter has been pre-purchased by Owner and will be delivered within the "last mile" of the project site by Others using an over the road tractor trailer. Contractor is responsible for coordinating delivery, off-loading the shelter from the delivery vehicle, transporting from the delivery point to the tower site and installing it on the Contractor installed shelter foundation. Contractor is also responsible for hookup of all utility connections/services to the shelter to insure a complete and fully functional shelter.
5. Contractor shall install a 22kW/22kVA 120/240V 1Phase LP fueled backup generator system at the site. The generator and transfer switch will be provided by Owner. Contractor shall install both items including underground conduits, concrete pad, LP fuel line, electrical wiring, alarm wiring and connection to the site ground system. Contractor shall also assist with start-up and commissioning of the overall system.

6. Contractor shall provide and install a LP fuel system which generally includes: 500 gal. LP tank (provided by Owner), hard wired remote LP tank level monitor system, and LP fuel piping. LP fuel will be supplied by Owner.
7. Contractor shall provide and install a new 120/240V, 1Phase, 200A electric service to the equipment shelter. The new electric service will be applied for directly by the Owner. Owner will be responsible to pay for any required connection fees directly to the electric utility provider. Contractor shall include all required conduits, conductors and other items from the existing multi-meter utility rack to the equipment shelter. All necessary electrical, grounding and bonding work, inside and outside the shelter, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.
8. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on and off-site areas disturbed by the project to pre-existing conditions.

**G. Base Bid 6: Cambridge**

1. The project scope of work generally consists of site work and includes installing a foundation system for a prefabricated precast equipment shelter, LP fueled backup generator system, ice bridge, site grounding system and other general site improvements.
2. The existing 430' guyed tower will remain.
3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall install a 12'x16' prefabricated precast equipment shelter. The shelter has been pre-purchased by Owner and will be delivered within the "last mile" of the project site by Others using an over the road tractor trailer. Contractor is responsible for coordinating delivery, off-loading the shelter from the delivery vehicle, transporting from the delivery point to the tower site and installing it on the Contractor installed shelter foundation. Contractor is also responsible for hookup of all utility connections/services to the shelter to insure a complete and fully functional shelter.
5. Contractor shall install a 22kW/22kVA 120/240V 1Phase LP fueled backup generator system at the site. The generator and transfer switch will be provided by Owner. Contractor shall install both items including underground conduits, concrete pad, LP fuel line, electrical wiring, alarm wiring and connection to the site ground system. Contractor shall also assist with start-up and commissioning of the overall system.
6. Contractor shall provide and install a LP fuel system which generally includes: 500 gal. LP tank (provided by Owner), hard wired remote LP tank level monitor system, and LP fuel piping. LP fuel will be supplied by Owner.
7. Contractor shall provide and install a new 120/240V, 1Phase, 200A electric service to the equipment shelter. The new electric service will be applied for directly by the Owner. Owner will be responsible to pay for any required connection fees directly to the electric utility provider. Contractor shall include all required conduits, conductors and other items from the existing multi-meter

utility rack to the equipment shelter. All necessary electrical, grounding and bonding work, inside and outside the shelter, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.

8. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on and off-site areas disturbed by the project to pre-existing conditions.

**H. Base Bid 7: Concord**

1. The project scope of work generally consists of site work and includes installing a foundation system for a prefabricated precast equipment shelter, LP fueled backup generator system, ice bridge, site grounding system and other general site improvements.
2. The existing 250' self-support tower will remain.
3. All antennas, dishes, mounts, transmission lines and other accessory items including: ice shields, connectors, jumpers, hoist grips, snap-ins and ground kits for these items will be provided and installed by Others and are not part of the Scope of Work.
4. Contractor shall install a 12'x16' prefabricated precast equipment shelter at the site. The shelter has been pre-purchased by Owner and will be delivered within the "last mile" of the project site by Others using an over the road tractor trailer. Contractor is responsible for coordinating delivery, off-loading the shelter from the delivery vehicle, transporting from the delivery point to the tower site and installing it on the Contractor installed shelter foundation. Contractor is also responsible for hookup of all utility connections/services to the shelter to insure a complete and fully functional shelter.
5. Contractor shall install a 22kW/22kVA 120/240V 1Phase LP fueled backup generator system at the site. The generator and transfer switch will be provided by Owner. Contractor shall install both items including underground conduits, concrete pad, LP fuel line, electrical wiring, alarm wiring and connection to the site ground system. Contractor shall also assist with start-up and commissioning of the overall system.
6. Contractor shall provide and install a LP fuel system which generally includes: 500 gal. LP tank (provided by Owner), hard wired remote LP tank level monitor system, and LP fuel piping. LP fuel will be supplied by Owner.
7. Contractor shall provide and install a new 120/240V, 1Phase, 200A electric service to the equipment shelter. The new electric service will be applied for directly by the Owner. Owner will be responsible to pay for any required connection fees directly to the electric utility provider. Contractor shall include all required conduits, conductors and other items from the transformer to the equipment shelter. All necessary electrical, grounding and bonding work, inside and outside the shelter, shall be completed by Contractor. All electrical work shall be completed by a licensed electrician and in accordance with applicable codes.
8. Contractor is responsible for all specified site improvements, fencing, landscaping and restoration of all on and off-site areas disturbed by the project to pre-existing conditions.

**I. Base Bid 7: Palmyra Old Tower**

1. The project scope of work generally consists of demolition and restoration of an existing tower site.
2. Contractor shall remove and dispose of (2) existing equipment buildings, 100' tall self-support tower and chain link fence compound.
3. Contractor shall demolish and remove the tower foundations to a min of 48-inches below grade and restore the site in accordance with the drawings.
4. Contractor shall salvage the existing 15KW generator and transfer switch and deliver it to the Annex tower site.

**1.4 TYPE OF CONTRACT**

- A. The project will be constructed under a single prime construction contract.

**1.5 PERMITS**

- A. All required building permits shall be obtained and permit fees paid for by Contractor. Permits associated with zoning compliance or co-location on existing towers owned by Others shall be obtained and paid for by Owner.

**1.6 EQUIPMENT AND MATERIALS FURNISHED BY OTHERS**

- A. The pre-fabricated precast equipment shelters have been pre-purchased by Owner and will be delivered to within the "last mile" of the project site by Others using an over the road tractor trailer. Contractor is responsible for coordinating delivery, off-loading the shelter from the delivery vehicle, transporting from the delivery point to the tower site and installing it on the Contractor installed shelter foundation.
- B. The 17 KW & 22 KW generators and transfer switches will be provided by Owner. Contractor is responsible installation including startup and commissioning.
- C. All LP tanks will be provided by Owner and delivered to each tower site. Owner will also provide all LP fuel. Contractor is responsible for tank installation.

**1.7 WORK BY OTHERS**

- A. All antennas, dishes, and transmission feed lines will be provided and installed by Others (Radio System Vendor), unless otherwise specified. This includes providing and installing mounts for these items and antenna and feedline grounding. At some sites, tower work is required by Contractor to "prepare the pathway" for feedline installation. This includes installing vertical transmission line ladders on select towers.
- B. All radio equipment and equipment racks will be provided and installed by Others (Radio System Vendor).

**1.8 WORK BY OWNER**

- A. None.



1.9 CONTRACTOR'S USE OF SITE

- A. Coordination with Occupants and Site Owners: Contractor shall coordinate construction activities to allow access to the existing buildings and towers during the entire construction period. Contractor shall Cooperate with Occupants, other Contractors, and Site Owners during construction period to minimize conflicts and facilitate day to day operations.
- B. Construction Operations: Limited to areas noted on Drawings.
- C. Time Restrictions for Performing Work: Perform work between hours of 7:00 am and 7:00 pm (Monday – Friday) or other timeframe required by Owner, site owners or local ordinance.

1.10 TIME FOR COMPLETION

- A. Refer to the Agreement for Contract Times.

1.11 SPECIFICATION CONVENTIONS

- A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words “shall be” are included by inference where a colon (:) is used within sentences or phrases.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Applications for payment.
- B. Change procedures.
- C. Defect assessment.

1.2 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be in accordance with the terms of the contract. Retainage in the amount indicated in the Agreement will be retained on each application until final completion and payment.
- B. Submit one copy of each application on AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet for G702.
- C. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- D. Submit updated construction schedule with each Application for Payment.
- E. Payment Period: Submit at intervals stipulated in the Agreement.
- F. Submit with transmittal letter as specified for Submittals in Section 01 33 00 - Submittal Procedures.
- G. Substantiating Data: When Architect/Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
  - 1. Partial release of liens from major subcontractors and vendors.
  - 2. Construction progress schedules, revised and current as specified in Section.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
  - 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  - 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

- I. Final Payment Application: Submit Final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited to, the following:
  1. Evidence of completion of Project closeout requirements.
  2. Insurance Certificates for products and completed operations where required and proof that taxes, fees and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractors Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final, liquidated damages settlement statement.

### 1.3 CHANGE PROCEDURES

- A. Submittals: Submit name of individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. The Architect/Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on AIA Form G710.
- C. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's maximum price quotation or Contractor's request for Change Order as approved by Architect/Engineer.
- D. Construction Change Directive: Architect/Engineer may issue directive, on AIA Form G713 Construction Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- E. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Architect/Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- F. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- G. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.
- H. Change Order Forms: AIA G701 Change Order.
- I. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

- J. Correlation Of Contractor Submittals:
  - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
  - 2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
  - 3. Promptly enter changes in Project Record Documents.

#### 1.4 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Architect/Engineer, it is not practical to remove and replace the Work, the Architect/Engineer will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Owner.
- D. Authority of Architect/Engineer or Owner to assess defects and identify payment adjustments, is final.
- E. Non-Payment For Rejected Products: Payment will not be made for rejected products 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 transporting vehicle.
  - 4. Products placed beyond lines and levels of required Work.
  - 5. Products remaining on hand after completion of the Work.
  - 6. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Cutting and patching.
- F. Special procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirements and characteristics of operating equipment are compatible with existing utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.
- C. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
- D. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's and building General Contractor's activities.

1.3 FIELD ENGINEERING

- A. Locate and protect survey control and reference points. Promptly notify Architect/Engineer of discrepancies discovered.
- B. Control datum for survey is that shown on Drawings.
- C. Verify set-backs and easements; confirm drawing dimensions and elevations.
- D. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

- E. Maintain complete and accurate log of control and survey work as Work progresses.
- F. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- G. Promptly report to Architect/Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- H. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect/Engineer.

#### 1.4 PRECONSTRUCTION MEETING

- A. Owner will schedule meeting after Notice of Award.
- B. Attendance Required: Owner, Architect/Engineer, and Contractor.
- C. Agenda:
  - 1. Execution of Owner-Contractor Agreement.
  - 2. Submission of executed bonds and insurance certificates.
  - 3. Distribution of Contract Documents.
  - 4. Submission of list of products, schedule of values, and progress schedule.
  - 5. Designation of personnel representing parties in Contract, and Architect/Engineer.
  - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  - 7. Scheduling.
  - 8. Use of premises by Owner and Contractor.
  - 9. Owner's requirements.
  - 10. Construction facilities and controls provided by Owner.
  - 11. Temporary utilities provided by Owner.
  - 12. Survey and layout.
  - 13. Security and housekeeping procedures.
  - 14. Schedules.
  - 15. Application for payment procedures.
  - 16. Procedures for testing.
  - 17. Procedures for maintaining record documents.
  - 18. Requirements for start-up of equipment.
  - 19. Inspection and acceptance of equipment put into service during construction period.

#### 1.5 PROGRESS MEETINGS

- A. Participate in project conference call meetings with Owner, Engineer and others throughout progress of the Work at maximum weekly intervals.
- B. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect/Engineer, 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 impeding 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.

## PART 2 PRODUCTS - Not Used

## PART 3 EXECUTION

### 3.1 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
1. Uncover Work to install or correct ill-timed Work.
  2. Remove and replace defective and non-conforming Work.
  3. Remove samples of installed Work for testing.
- C. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.
- D. Cut masonry and concrete materials using masonry saw or core drill.
- E. Restore Work with new products in accordance with requirements of Contract Documents.

### 3.2 SPECIAL PROCEDURES

- A. Materials: As specified in product sections; match existing with new products and salvaged products for patching and extending work.
- B. Employ skilled and experienced installer to perform alteration work.
- C. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

- D. Remove debris and abandoned items from area and from concealed spaces.
- E. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- F. Where new Work abuts or aligns with existing, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- G. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect/Engineer for review.
- H. Where change of plane of 1/4 inch or more occurs, submit recommendation for providing smooth transition; to Architect/Engineer for review.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Product data.
- E. Shop drawings.
- F. Samples.
- G. Design data.
- H. Test reports.
- I. Certificates.

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Architect/Engineer accepted form.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- D. 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 requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Architect/Engineer at business address or in person. Coordinate submission of related items.
- F. For each submittal for review, allow 3 days excluding delivery time to and from Contractor.
- G. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.

- H. Allow space on submittals for Contractor and Architect/Engineer review stamps.
- I. When revised for resubmission, identify changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.

### 1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit preliminary outline Schedule at the preconstruction meeting for coordination with Owner's requirements. After review, submit detailed schedules within 7 days modified to accommodate revisions recommended by Architect/Engineer.
- B. Submit revised Progress Schedules with each Application for Payment.
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Submit computer generated horizontal bar chart with separate line for each major portion of Work or operation, identifying first work day of each week.
- F. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Revisions To Schedules:
  - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
  - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
  - 3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect including effect of changes on schedules of separate contractors.

### 1.4 PROPOSED PRODUCTS LIST

- A. Within 7 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.

## 1.5 PRODUCT DATA

- A. Product Data: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus one copy Architect/Engineer will retain.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01 70 00 - Execution Requirements.

## 1.6 SHOP DRAWINGS

- A. Shop Drawings: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual specification sections, provide shop drawings signed and sealed by professional engineer responsible for designing components shown on shop drawings.
  - 1. Include signed and sealed calculations to support design.
  - 2. Submit drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
  - 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. Submit number of opaque reproductions Contractor requires, plus two copies Architect/Engineer will retain.
- E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01 70 00 - Execution Requirements.

## 1.7 SAMPLES

- A. Samples: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.



- B. Samples For Selection as Specified in Product Sections:
  - 1. Submit to Architect/Engineer for aesthetic, color, or finish selection.
  - 2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Architect/Engineer selection.
- C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Include identification on each sample, with full Project information.
- E. Submit number of samples specified in individual specification sections; Architect/Engineer will retain one sample.
- F. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- G. Samples will not be used for testing purposes unless specifically stated in specification section.
- H. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 70 00 - Execution Requirements.

#### 1.8 DESIGN DATA

- A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

#### 1.9 TEST REPORTS

- A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

#### 1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Architect/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 Architect/Engineer.

Tower Site Construction  
Jefferson County, Wisconsin

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities:
  - 1. Temporary electricity.
  - 2. Temporary water service.
- B. Construction Facilities:
  - 1. Field offices and sheds.
  - 2. Vehicular access.
  - 3. Parking.
  - 4. Progress cleaning and waste removal.
  - 5. Traffic regulation.
- C. Temporary Controls:
  - 1. Barriers.
  - 2. Enclosures and fencing.
  - 3. Water control.
  - 4. Dust control.
  - 5. Erosion and sediment control.
  - 6. Noise control.
  - 7. Pollution control.
- D. Removal of utilities, facilities, and controls.

1.2 TEMPORARY ELECTRICITY

- A. Contractor shall pay cost of energy used until project substantial completion. Exercise measures to conserve energy. Utilize Owner's existing power service when available.

1.3 TEMPORARY WATER SERVICE

- A. Provide and pay for suitable quality water service as needed to maintain specified conditions for construction operations. Connect to existing water sources when available. Provide separate metering and reimburse Owner for cost of water used.

1.4 FIELD OFFICES AND SHEDS

- A. None Required.

## 1.5 VEHICULAR ACCESS

- A. Construct temporary access roads from public thoroughfares to serve construction area, of width and load bearing capacity to accommodate unimpeded traffic for construction purposes.
- B. Extend and relocate vehicular access as Work progress requires, provide detours as necessary for unimpeded traffic flow.
- C. Location as indicated on Drawings and/or approved by Owner.
- D. Provide unimpeded access for emergency vehicles. Maintain 20 feet wide driveways with turning space between and around combustible materials.
- E. Provide and maintain access to fire hydrants and control valves free of obstructions.
- F. Provide means of removing mud from vehicle wheels before entering streets.
- G. Use designated existing on-site roads for construction traffic.

## 1.6 PARKING

- A. Arrange for temporary surface parking areas to accommodate construction personnel.
- B. Locate as approved by Owner.
- C. When site space is not adequate, provide additional off-site parking.
- D. Use of designated existing on-site streets and driveways used for construction traffic is permitted. Tracked vehicles not allowed on paved areas.
- E. Use of designated areas of existing parking facilities used by construction personnel is permitted.
- F. Do not allow heavy vehicles or construction equipment in parking areas.
- G. Do not allow vehicle parking on existing pavement.
- H. Mud from Site Vehicles: Provide means of removing mud from vehicle wheels before entering streets.

## 1.7 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site periodically and dispose off-site.

## 1.8 TRAFFIC REGULATION

- A. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- B. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- C. Haul Routes:
  - 1. Consult with authority having jurisdiction, establish public thoroughfares to be used for haul routes and site access.
- D. Removal:
  - 1. Remove equipment and devices when no longer required.
  - 2. Repair damage caused by installation.

## 1.9 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide protection for plants designated to remain. Replace damaged plants.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

## 1.10 ENCLOSURES AND FENCING

- A. No permanent enclosure or fence is required. Provide temporary enclosures and fences as necessary to protect the public and secure the site.

## 1.11 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

## 1.12 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

## 1.13 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

- B. Minimize surface area of bare soil exposed at one time.
- C. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.14 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.15 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.
- B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to minimum depth of 4 feet. Grade site as indicated on Drawings.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. 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 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Protecting installed construction.
- D. Project record documents.

1.2 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 Architect/Engineer's review.
- B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean site; sweep paved areas, rake clean landscaped surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Prohibit traffic from landscaped areas.

1.5 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.

5. Reviewed Shop Drawings, Product Data, and Samples.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  1. Manufacturer's name and product model and number.
  2. Product substitutions or 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. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  3. Field changes of dimension and detail.
  4. Details not on original Contract drawings.
- G. Submit documents to Architect/Engineer with claim for final Application for Payment.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

SECTION 02 41 13

DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for the demolition, removal and/or salvage of existing facilities as required in these specifications and on the drawings. Included are the following topics:
- B. Related Sections:
  - 1. Section 31 22 13 – Rough Grading
  - 2. Section 31 23 23 - Fill

1.2 SUBMITTALS

- A. For utilities or other services requiring removal or abandonment in-place, submit materials documenting completion of such work.

1.3 SAFETY

- A. Verify that all gas, electrical and water utilities have been abandoned or disconnected and associated hazards mitigated, prior to beginning any demolition.
- B. Take all necessary precautions while dismantling piping containing gas, gasoline, oil or other explosive or toxic fluids or gases. Purge lines and contain materials in accordance with all applicable regulations. Store such piping outdoors until fumes are removed.
- C. Maintain a clean and orderly site. Remove debris at end of each workday.
- D. Burning of debris is not permitted.
- E. If hazardous materials are not anticipated, but encountered, terminate operations and contact the Construction Representative immediately. Follow all applicable local, state and federal regulations pertaining to hazardous materials.

1.4 PERMITS

- A. Unless otherwise noted, Contractor shall be responsible for obtaining and paying for all permits necessary to complete demolition work. This includes but is not limited to local Work in Right of Way permits, transportation and/or material disposal permits.

### 1.5 DISCONNECTION OF SERVICES

- A. Prior to starting removal and/or demolition operations be responsible and coordinate disconnection of all existing utilities, communication systems, alarm systems and other services scheduled for removal.
- B. Disconnect all services in manner which insures continued operation in facilities not scheduled for demolition.
- C. Disconnect all services in manner which allows for future connection to that service.
- D. Disconnect services to equipment at unions, flanges, valves, or fittings wherever possible.

### 1.6 REMOVAL/SALVAGING OF ITEMS

- A. Where salvaged items are indicated to be turned over to Owner, deliver to location where designated by Owner. For this project all salvaged items shall be turned over to Owner at the project site.
- B. Where indicated to be incorporated into new work, store the salvaged item in secure location until trade responsible for re-installation mobilizes his equipment and storage facilities to the site, or otherwise accepts responsibility for the salvaged item.

### 2.1 EQUIPMENT

- A. Use Contractor's normal equipment for demolition purposes and which meets all safety requirements imposed on such equipment.

## PART 3 EXECUTION

### 3.1 PROTECTION OF EXISTING WORK & FACILITIES

- A. Take all measures necessary to safeguard all existing work and facilities which are outside the limits of the work.
- B. Furnish and install fencing or other barriers as shown on the plans or as otherwise necessary to protect existing features.
- C. Verify the locations of, and protect, any buildings, structures, utilities, paved surfaces, signs, streetlights, utilities, landscaping and all other such facilities that are intended to remain or be salvaged.
- D. Make such explorations and probes as necessary to ascertain any required protection measures that shall be used before proceeding with demolition.
- E. Provide and maintain adequate catch platforms, warning lights, barricades, guards, weather protection, dust protection, fences, planking, bracing, shoring, piling, signs, and other items required for proper protection.

- F. Provide protection for workmen, public, adjacent construction and occupants of existing building(s).
- G. Report damage of any facilities or items scheduled for salvaging to the Construction Representative.
- H. Repair or replace any damaged facilities that are not scheduled for demolition.
- I. Explosives shall not be used for demolition.
- J. Keep streets, walks and all other adjacent paved areas clean and swept clear of dirt, mud and debris deposited as a result of this operation.
- K. Protect surrounding area from dust. Control rodents, and other vermin associated with demolition operations.

### 3.2 DEMOLITION

- A. Remove all equipment, fixtures and other materials scheduled for salvage prior to beginning demolition operations.
- B. Demolish and remove all buildings and structures scheduled for demolition as shown on the plans.
- C. Remove all foundations scheduled for demolitions to a minimum of 48-inches below finished grade unless otherwise directed.
- D. Abandon gas, electric, communication, water and sewer utilities in accordance with local utility company requirements, or applicable substantive requirements if considered private.
- E. Carry out vehicle loading as necessary within the project boundaries or as defined or indicated on the drawings, but not in locations that block vehicular traffic on the streets or pedestrian traffic on adjacent public walks.
- F. Dismantle each structure in an orderly manner to provide complete stability of the structure at all times. Provide bracing and shoring where necessary to avoid premature collapse of structure.
- G. Conduct demolition operations and the removal of rubbish and debris in such a way that a minimum of nuisance dust is caused. Constantly sprinkle rubbish and debris with water if necessary to keep nuisance dust to a minimum.
- H. Where necessary to prevent collapse of any construction, install temporary shores, underpinning, struts or bracing. Do not commence demolition work until all temporary construction is complete.

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- I. During the execution of the work, provide, operate, and maintain all pumping equipment, suction and discharge lines in a number of capacity as required to keep all excavations and pits free of water from any source whatsoever at all times.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Equipment shelter/building foundations.
  - 2. Ice bridge, bollard and fence post footings.
  - 3. Concrete support slabs & stoops.
  - 4. Concrete sidewalk
- B. Related Sections:
  - 1. Section 32 31 13 – Chain Link Fences and Gates.

1.2 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
- B. ASTM International:
  - 1. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
  - 2. ASTM A775/A775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
  - 3. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement.
  - 4. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
  - 5. ASTM C33 - Standard Specification for Concrete Aggregates.
  - 6. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 7. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
  - 8. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
  - 9. ASTM C150 - Standard Specification for Portland Cement.
  - 10. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
  - 11. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
  - 12. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
  - 13. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.



### 1.3 SUBMITTALS

- A. Concrete Mix Design: Submit proposed mix designs for each class of concrete a minimum of 7 days prior to the start of work in this section.
- B. Product Data: Submit data on concrete admixtures and curing compounds.
- C. Delivery Tickets: Submit delivery tickets from each load of concrete delivered.
- D. Test Results: Submit test results for required testing.

### 1.4 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall not have concrete delivered until forms, reinforcement, and embedded items are in place and ready for concrete placement. The Contractor shall coordinate with the Owner and building addition General Contractor for job site storage of materials.
- B. The Contractor shall store reinforcements of different sizes and shapes in separate piles or racks. The piles or racks shall be raised above the ground to avoid excessive rusting. The Contractor shall protect materials from contaminants, such as grease, oil, and dirt.
- C. The Contractor shall ensure that materials can be accurately identified after bundles are broken and tags removed.

### 1.5 TESTING

- A. An independent testing firm, hired by the Contractor, shall perform all concrete tests in accordance with ACI 301, except that the sampling shall be done from the truck.
- B. Perform one set of tests for each 50 CY of concrete placed. Testing to include:
  - 1. Slump
  - 2. Air entrainment
  - 3. Cylinders for compression testing. Cast a minimum of 10 cylinders for each test. Perform two break results minimum at 7 days, 28 days. Perform additional breaks if results are required prior to 28 days.
- C. Tests may be required of in-place concrete by the testing laboratory if concrete is suspected of being unacceptable. Test may be core cylinders complying with ASTM C42. Such testing will be at the Contractor's expense and any other additional testing when the concrete is unacceptable.
- D. Unacceptable concrete work shall be corrected at the Contractor's expense and without a time extension for removing and replacing the defective work.

### 1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.

- B. Obtain cementitious materials from same source throughout.
- C. Follow recommendations of ACI 305R when concreting during hot weather.
- D. Follow recommendations of ACI 306R when concreting during cold weather.

## PART 2 PRODUCTS

### 2.1 FORM MATERIALS

- A. Form Materials: Conform to ACI 301.
- B. Joint Filler: ASTM D1751 type; 1/2 inch thick.

### 2.2 REINFORCING STEEL

- A. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet steel deformed bars; uncoated finish.
- B. Welded Steel Wire Fabric: Plain type, ANSI/ASTM A185; in flat sheets; uncoated finish. Size and gauge as indicated on plans.

### 2.3 CONCRETE MATERIALS

- A. Cement ASTM C150, normal - Type 2, Portland, gray color.
- B. Fine and Coarse Aggregates: ASTM C33, Coarse aggregate size as shown in mix class. Gradation to comply with ASTM C-33, Table II, within the following limits:
- C. Use 3/4" to No. 4 aggregate for footings, slabs, plain concrete, walls and pavement.
- D. Fine aggregate to be natural sand. Aggregates to be free of iron oxide and not more than 2.5% soft particles.

### 2.4 ADMIXTURES

- A. Air Entrainment Admixture: ASTM C260
- B. Chemical Admixtures for Concrete: ASTM C494.

### 2.5 CURING MATERIALS

- A. Water: Shall be potable and free from injurious amounts of oil, alkalis or organic matter.
- B. Absorptive Mat: Burlap-polyethylene, 8 oz. / sq. yd., bonded to prevent separation during use.
- C. Membrane Curing Compound: ASTM C309, Type 1.

- D. Polyethylene Film: ASTM D4397, 4 mil thick, clear color.

## 2.6 CONCRETE MIX

- A. Mix Concrete in accordance with ASTM C94.
- B. All Concrete:
  - 1. Minimum compressive strength (28 days): 4000 psi., as tested by ASTM C39, and proportioned by ACI 318.
  - 2. Refer to tower foundation design for greater compressive strength and other, more stringent, design requirements.
  - 3. Note: Some jurisdictions may require special inspections above 2500psi.
  - 4. Slump: 5 inch maximum - 2 inch minimum.
- C. Concrete exposed to the weather including foundations and exterior slabs shall be air-entrained conforming to ASTM C-260 at the rate of 4% to 8% for 3/4" aggregate concrete. Air content to be determined by "Pressure Method" ASTM C-231 or "Volumetric Method" ASTM C-173.
- D. Minimum Cement Content: 517 lbs. per cubic yard.
- E. Concrete being placed when temperature is less than 40 F. may contain 1% calcium chloride by weight of cement, ASTM C-494. Approval by Owner Representative prior to use is required.

## PART 3 EXECUTION

### 3.1 FORMWORK ERECTION

- A. Verify lines, levels, and measurements before proceeding with formwork.
- B. Hand trim sides and bottom of earth forms; remove loose dirt.
- C. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, embedded plates and angles, and other inserts.
- D. Formwork shall comply with all pertinent provisions of ACI 347.
- E. Forms shall remain in place for a minimum of 24 hours after concrete placement and finishing.
- F. The Contractor shall construct formwork for exposed concrete surfaces with smooth faced, undamaged plywood or other panel type materials acceptable to Owner in order to provide continuous straight, smooth as-cast surfaces. The Contractor shall furnish in largest, practicable sizes in order to minimize the joints.
- G. The Contractor shall provide form material with sufficient thickness to withstand the pressure of the newly placed concrete without exceptional bow or deflection.

- H. Side forms for footings may be omitted and concrete poured directly against excavation only when requested by the Contractor and accepted by Owner. When omission of forms is accepted, the Contractor shall provide additional concrete 2.5 cm (1") on each side of the minimum design profile of sides and dimensions shown.
- I. Cleaning and Tightening:
  - 1. The Contractor shall thoroughly clean forms and adjacent surfaces that are to receive concrete.
  - 2. The Contractor shall remove chips, wood, sawdust, dirt, and other debris just before concrete is placed.
  - 3. The Contractor shall retighten forms immediately after concrete placement, as required, to eliminate mortar leaks.

### 3.2 REINFORCEMENT PLACEMENT

- A. Supports for Reinforcement: For slabs on grade, the Contractor shall use supports with sand plates or horizontal runners where base material will not support chair legs. Pieces of concrete block or bricks will not be permitted.
- B. Steel supports shall comply with CRSI recommendations.
- C. The Contractor shall position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations. The Contractor shall locate and support reinforcing by ties, spacers, chairs or hangers, as required.
- D. The Contractor shall clean reinforcement to remove loose rust and mill scale, earth, and other materials.

### 3.3 CONCRETE PLACEMENT

- A. Contractor shall notify Engineer 72 hours in advance of each concrete pour. Engineer to inspect foundation excavation prior to concrete placement and to be present during concrete placement.
- B. All concrete work shall meet ACI 318 and ACI 309 requirements. All applicable placement recommendations of ACI shall be followed including recommendations for hot and cold weather placement.
- C. All work to be performed by skilled workers. Form work and slab areas to be clean of all foreign material (i.e., rocks, sawdust, blocks, etc.).
- D. Concrete shall be moved and placed in a manner to avoid segregation of mix.
- E. Consolidate all concrete in accordance with ACI 309.
- F. Consolidate each layer of concrete immediately after placing by using internal vibrators supplemented by hand spading, rodding, or tamping.

- G. Spacing between insertions of the vibrator that is used to consolidate shall not exceed twice the radius of action as shown in Table 5.1.4 of ACI 309.
- H. The Contractor shall not vibrate forms or reinforcement.
- I. The Contractor shall limit the duration of vibration to time necessary to produce satisfactory consolidation without causing segregation of aggregates.

#### 3.4 CONCRETE FINISH

- A. The foundations shall receive a smooth steel trowel finish. Levelness shall be held to 1/8" in 10'.
- B. Concrete stoops shall be smooth troweled and shall receive a medium broom finish.
- C. Control joints for slabs on grade shall be tooled to 1/3 of slab depth (or saw cut to same depth) and shall be spaced in feet, twice the slab depth in inches (i.e., joints for a 4" slab shall be spaced 8' on center in each direction).
- D. All concrete slab edges to have 1" chamfer.

END OF SECTION

SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Requirements for the furnishing and installation of signage

1.2 SIGN SCHEDULE

- A. Provide the following types and quantity of signs:
  - 1. Jefferson Main Tower:
    - a. ASR Signs: Quantity (0)
    - b. Site Identification Signs: Quantity (1)
    - c. RF Notice Signs: Quantity (4)
    - d. RF Cautions Signs: Quantity: (1) Tower Type and (1) Shelter Type
    - e. RF Hazard Signs: Quantity: (0)
    - f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
    - g. NFPA LP Fuel Signs: Quantity (1)
  - 2. Johnson Creek:
    - a. ASR Signs: Quantity (0)
    - b. Site Identification Signs: Quantity (1)
    - c. RF Notice Signs: Quantity (4)
    - d. RF Cautions Signs: Quantity: (1) Tower Type and (1) Shelter Type
    - e. RF Hazard Signs: Quantity: (0)
    - f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
    - g. NFPA LP Fuel Signs: Quantity (1)
  - 3. Waterloo:
    - a. ASR Signs: Quantity (0)
    - b. Site Identification Signs: Quantity (1)
    - c. RF Notice Signs: Quantity (4)
    - d. RF Cautions Signs: Quantity: (1) Tower Type and (1) Shelter Type
    - e. RF Hazard Signs: Quantity: (0)
    - f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
    - g. NFPA LP Fuel Signs: Quantity (1)
  - 4. Ixonia:
    - a. ASR Signs: Quantity (0)
    - b. Site Identification Signs: Quantity (1)
    - c. RF Notice Signs: Quantity (4)
    - d. RF Cautions Signs: Quantity: (1) Shelter Type
    - e. RF Hazard Signs: Quantity: (0)
    - f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
    - g. NFPA LP Fuel Signs: Quantity (1)
  - 5. Palmyra:
    - a. ASR Signs: Quantity (0)

- b. Site Identification Signs: Quantity (1)
- c. RF Notice Signs: Quantity (4)
- d. RF Cautions Signs: Quantity: (1) Tower Type and (1) Shelter Type
- e. RF Hazard Signs: Quantity: (0)
- f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
- g. NFPA LP Fuel Signs: Quantity (1)
- 6. Cambridge:
  - a. ASR Signs: Quantity (0)
  - b. Site Identification Signs: Quantity (1)
  - c. RF Notice Signs: Quantity (4)
  - d. RF Cautions Signs: Quantity: (1) Tower Type and (1) Shelter Type
  - e. RF Hazard Signs: Quantity: (0)
  - f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
  - g. NFPA LP Fuel Signs: Quantity (1)
- 7. Concord:
  - a. ASR Signs: Quantity (0)
  - b. Site Identification Signs: Quantity (1)
  - c. RF Notice Signs: Quantity (4)
  - d. RF Cautions Signs: Quantity: (1) Tower Type and (1) Shelter Type
  - e. RF Hazard Signs: Quantity: (0)
  - f. OSHA Danger Authorized Personnel Only Signs: Quantity (1)
  - g. NFPA LP Fuel Signs: Quantity (1)

### 1.3 SUBMITTALS

- A. Submit product information for each type of sign to be provided. Information to include detail on sign size, material and quantity provided.
- B. Submit drawing proof, for review and approval, of all custom signs prior to fabrication and/or ordering.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Materials: Signs shall be constructed of galvanized steel, aluminum or polypropylene or backing.
- B. Color: Signs shall have a UV resistant white reflective background with black lettering, unless otherwise noted.
- C. Lettering: Letters shall be machine cut vinyl, polyester or silk screened.

### 2.2 VISIBILITY

- A. Warning Signs shall be visible from a minimum of 25 feet. FCC and FAA registration numbers shall be visible within 10 feet.



## 2.3 ANTENNA STRUCTURE REGISTRATION NUMBER (ASR) SIGNS

- A. Type: Standard
- B. Size: 2” high x 12” wide
- C. Lettering:
  - 1. “FEDERAL COMMUNICATION COMMISSION TOWER REGISTRATION NUMBER: XXXXXXXX”

## 2.4 SITE IDENTIFICATION SIGNS

- A. Type: Custom
- B. Size: 12” high x 18” wide min.
- C. Lettering:
  - 1. “Owner Info”
  - 2. “FCC/ASR#: XXXXXXXX”
  - 3. “Facility Name: XXXXXXXXXXXX”
  - 4. “For Access Contact: (XXX) XXX-XXXX”

## 2.5 RF NOTICE SIGNS

- A. Type: Standard “Blue”
  - 1. Available from Tescoco.com (SKU 396843)
- B. Size: 14”x20”
- C. Use: Signifies to visitors that no hazardous conditions exist beyond this point unless they come to another sign.

## 2.6 RF CAUTION SIGNS

- A. Type: Standard “Yellow”
  - 1. Available from Tescoco.com (SKU 326606 and SKU 306789)
  - 2. Installed on Tower: SKU 326606
  - 3. Installed on Equipment Shelter door: SKU 306789
- B. Size: 14”x20”
- C. Use: Signifies to visitors that beyond this point: radio frequency fields at this site may exceed FCC rules for human exposure.

## 2.7 RF WARNING SIGNS

- A. Type: Standard “Red”
  - 1. Available from Tescoco.com (SKU 326648)

- B. Size: 14"x20"
- C. Use: Signifies to visitors that beyond this point: radio frequency fields at this site exceed FCC rules for human exposure.

## 2.8 OSHA DANGER AUTHORIZED PERSONNEL ONLY SIGNS

- A. Type: Standard
  - 1. Available from ComplianceSigns.com (# ODE-1335)
- B. Size: 14"x10"
- C. Use: Signifies to visitors: Danger exists. Keep out Authorized Personnel Only.

## 2.9 NFPA FUEL SIGNS

- A. Type: Standard NFPA 704 Sign
  - 1. Available from ComplianceSigns.com
    - a. LP & Natural Gas Fuel: 1-4-0-0
      - 1) hazard levels: blue health = "1", red flammability = "4", yellow instability = "0", white special = blank
    - b. Diesel Fuel: 1-2-0-0
      - 1) hazard levels: blue health = "1", red flammability = "2", yellow instability = "0", white special = blank
- B. Size: 15" Diamond
- C. Use: Warn first responders to potential fuel source hazards & dangers.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install signs at the locations noted on the drawings with horizontal centerline at 5 feet above grade, plus or minus 1 foot.
- B. Secure signs to fences and towers with corrosion proof wire ties or hardware.
- C. Secure signs to shelter doors with industrial type adhesive.
- D. Refer to drawings for sign installation locations.

END OF SECTION

SECTION 13 34 23

SITE BUILT COMMUNICATION SHELTERS

PART 1 GENERAL

1.1 SUMMARY

- A. The work under this section includes requirements for the construction of a custom site built communication shelter at the Waterloo site as detailed in the plans.
- B. Related Sections:
  - 1. Section 03 30 00 – Cast-In-Place Concrete

1.2 DESCRIPTION OF SYSTEM

- A. In general, the communication shelter shall be a custom site-built building with split face masonry exterior, insulated walls, concrete floor with vinyl floor tile covering, frost wall foundation system and interior finishes as detailed in the plans. The finished inside clear height shall be at least 9'-3".
- B. Roof shall be gabled wood trusses (4:12 slope) with asphalt shingles.
- C. Refer to the drawings for shelter design, layout and configuration.

1.3 EQUIPMENT & MATERIALS FURNISHED BY OTHERS

- A. The existing generator system will be re-used at this site. The automatic transfer switch shall be salvaged from the existing equipment shelter and reinstalled in the new shelter.

1.4 WORK BY OTHERS

- A. The following equipment will be provided and installed by Others:
  - 1. Radio equipment Racks

1.5 COORDINATION

- A. Coordinate construction site access and restoration work with City of Waterloo for access through their property.

1.6 SHELTER CONTRACTOR

- A. The equipment shelter contractor shall have been engaged in the construction of buildings of similar construction, finish and use for a minimum of five years.

## 1.7 SUBMITTALS

- A. Submit Shop Drawings and Product Data of supplied materials and equipment to be installed. Submittals to include the following:
  - 1. Roof system: Trusses, sheeting, shingles, gable panels, soffit & flashings
  - 2. Exterior Walls: CMU Block, mortar, grout, reinforcement, flashings, and waterproofing membranes
  - 3. Insulation: All systems used
  - 4. Rebar: Foundation and walls
  - 5. Concrete: Mix Designs
  - 6. Interior: FRP Panels, vinyl floor tiles
  - 7. Doors: Door panel, frame, hardware & closer
  - 8. Finishes: Cable tray, coax entry port
  - 9. HVAC: HVAC units and lead lag controller
  - 10. Electrical: Disconnects, panels, switches, lights, conduits, surge protection devices, smoke alarm & alarms
  - 11. Grounding: Ground bars, coaxial surge protector trapeze, halo supports, wire, mechanical lugs, exothermic molds
- B. Provide one (1) electronic (pdf) copy of all submittals to A/E.
- C. Submittals to be approved by A/E prior to ordering materials.

## 1.8 WARRANTY

- A. The shelter contractor shall warrant each shelter structure from water intrusion for a period of 10 years from the date of final completion.
- B. The shelter contractor shall warrant the electrical, HVAC and mechanical components for period of one (1) year from the date of delivery.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. The materials furnished shall include all materials and components necessary for a complete building system as detailed in the plans and specifications.
- B. Concrete:
  - 1. Steel-Reinforced (ASTMA615 Grade 60 & ASTMA-185 Welded Wire Fabric), 4,000 PSI minimum, 28 Day Compressive Strength, Air-Entrained (ASTM C260).
- C. Roof System:
  - 1. Pre-engineered wood trusses (4:12 slope)
  - 2. ½" sheeting
  - 3. 30lb felt
  - 4. 40 year architectural asphalt shingle

5. Vented soffit
  6. Metal flashings and trim
- D. Exterior Walls:
1. The exterior wall finish shall be a split face CMU block of earth tone color.
  2. The finished exterior wall system shall be sealed with an approved compound designed for this application.
  3. Owner shall pick the block color from a standard palette of colors.
  4. Doors, awnings, ventilation hoods and other exterior steel surfaces shall be primed and painted rust inhibitor paint. Color to be chosen by Owner.
- E. Insulation:
1. Exterior Walls: Icynene closed cell polyurethane spray foam (R-19)
  2. Ceiling: Blown in cellulose or Icynene (R-19)
- F. Interior:
1. Wall and ceiling wood framing shall be covered with White Nu-Poly FRP over 3/4" min. OSB.
  2. Concrete floor shall be rotary trowel to smooth and flat surface. The floor shall be sealed with epoxy built up coating, covered with commercial vinyl floor tile and include vinyl base cove installed around the perimeter.
- G. Doors:
1. Insulated painted 18 GA galvanized steel door and 16 GA painted galvanized steel frame, cast-in. Hardware to include NRP stainless steel hinges, stepped threshold, door sweep, anti-pick guard, door bumper, drip cap, weather canopy, weather stripping, Door stop T latch and hydraulic door closer.
  2. Size: See plans
  3. Door Hardware:
    - a. Heavy duty lever handle hardware with cylindrical lockset.
- H. Electrical Systems:
1. 120/240 VAC single phase, 60hz
  2. 200 Amp Fused Main Service Disconnect
  3. Automatic Transfer Switch (ATS) – Owner provided
  4. Distribution Panel (PP1)
    - a. 42 slots for branch breakers
    - b. AIC Rating: 10,000
  5. Surge Protection Devices
    - a. SPD1:
      - 1) Type 1, 200KA Surge Capacity, EMI/RFI Filtering, Form C Dry Contacts
      - 2) Mersen Surge Trap XT Series, or equiv.
      - 3) 60A 2P disconnect
    - b. SPD2:
      - 1) Type 2, 200KA Surge Capacity, EMI/RFI Filtering, Form C Dry Contacts
      - 2) Mersen Surge Trap XT Series, or equiv.
      - 3) 60A 2P breaker

- c. Surge protection devices shall include alarm contacts and be wired back to the 66 type alarm punch block.
  6. 120V receptacles per drawings
  7. 120V & 240V circuits per drawings
  8. All wiring will be installed in surface mounted conduit or wire ways and will be in full compliance with ANSI/NFPA-70; The National Electric Code, Latest Revision.
  9. All receptacles and devices shall be labeled with the circuit/breaker number which controls each device. The label shall be mounted directly adjacent to the receptacle.
  10. All conductors shall be copper.
  11. All interior raceway shall be Electric Metallic Tube (EMT) or Rigid Galvanized Steel (RGS). EMT installations shall utilize compression fittings to maintain ground bond continuity.
  12. All wire and conduit sizes specified in the drawings are minimums. Larger sizes may be required by code. Any discrepancies between the drawings and code requirements shall be brought to the attention of the Engineer.
  13. All electrical work shall be completed under the direct supervision of a licensed master electrician
- I. Lighting:
1. Interior: 4ft single bulb LED fixture with wrap around protective lens
    - a. 4600 lumens
    - b. 4000 CCT
    - c. 35-watt
    - d. Interior light system to include occupancy sensors.
  2. Exterior: LED wall pack
    - a. 4000 lumens
    - b. 4000 CCT
    - c. 30-watt
    - d. Motion sensor
    - e. Photo-cell
  3. Emergency: Twin bulb LED with battery EXIT sign located over each doorway.
- J. Smoke Detectors
1. There shall be a smoke detector installed in each room.
  2. These smoke detectors shall include alarm contacts and wired back to the 66 type alarm punch block.
  3. The smoke detectors shall be operated on the mains power with battery backup.
- K. Alarms:
1. Unless otherwise specified, all alarm contacts shall be normally opened, SPST, common ground and wired to the alarm R66 punch blocks located on the alarm panel. The contact closures on the relays shall be capable of sinking 100 ma at – 48 volts dc.
  2. Provide (1) punch block
  3. All alarms shall be wired from each device back to the alarm punch block within conduit.

4. The alarms to be wired to the R66 punch block include the following:
  - a. Shelter:
    - 1) Shelter Door/Intrusion Alarm
    - 2) Shelter Smoke Alarm
    - 3) Shelter High Temperature
    - 4) Shelter Low Temperature
    - 5) HVAC #1 Fail
    - 6) HVAC #2 Fail
    - 7) Surge Arrestor #1 Fail
    - 8) Surge Arrestor #2 Fail
  - b. Generator:
    - 1) Refer to generator alarm requirements
  - c. ATS:
    - 1) Refer to ATS alarm requirements
- L. HVAC:
  1. The HVAC system shall include Two (2) lead lag controlled wall mount air conditioning units (2.0 Ton or 24,000 BTUH)
  2. 230V, 1P, 60 Hz
  3. Efficiency shall provide 11.0 EER minimum cooling ratio
  4. Lead lag controller: Bard MC4000-A
  5. Economizer
  6. Low ambient air kit to allow compressor to run down to 0 degrees F.
  7. 5KW heat strip
- M. Cable Tray:
  1. 12", 18" or other size overhead cable ladder per plans.
  2. 1 1/2" stringers
  3. 9" rung spacing
  4. Zinc dichromate finish
- N. Wave Guide Entry Port:
  1. 12 or other size port waveguide/coax entry port panels (see plans). 4" diameter port openings with cushions and caps.
- O. Grounding:
  1. Interior ground halo: #2 AWG stranded insulated conductor installed on all four walls of equipment room located approximately 6-inches below ceiling level. Ground halo shall be mounted on 6 inch standoffs located on approximate 12 inch centers. Maintain gaps in halos as noted in the plans.
  2. All transmission line entrance panels, cable trays, conduits, doors, door frames, HVAC grills, louvers and other metallic items shall be individually bonded to the halo using No.6 AWG copper conductors. Provide jumpers between conduit and cable tray splices. All bond wires shall be oriented with direction flowing toward the MGB.
  3. Neutral – Ground Bond: Install #2 AWG stranded insulated conductor from service disconnect to MGB.
  4. Provide ground bars and connections as noted in the plans. All ground bars shall be solid copper.

- a. 24"x4"x1/4" providing (44) forty four (2) two hole grounding lugs, (Site Pro Part No. MG42488K or equivalent).
  - b. MGB: Bare Copper
    - 1) Use PANI Organization system for ground lead connections to MGB.
  - c. Exterior Ground Bar: Tinned Copper
  - 5. Provide coaxial surge protector trapeze: SitePro1 model: ATK306U or equiv.
  - 6. Paint and other finishes shall be scraped/removed from beneath mechanical connections to ensure good electrical continuity.
- P. Miscellaneous:
- 1. Telco board
  - 2. Service manual wall pocket
  - 3. Fire extinguishers: (1) 10lb class BC Carbon Dioxide
  - 4. First aid kit
  - 5. Tie down plates & hardware

### PART 3 EXECUTION

#### 3.1 SHELTER CONSTRUCTION

- A. Coordinate site construction access with adjacent landowners.
- B. Document existing access conditions.
- C. Perform construction layout of foundation system to the line and grade noted in the drawings. Inform Engineer of any discrepancies and/or issues.
- D. Construct foundation system and backfill.
- E. Construct remaining building components in logical sequence to prevent removal/damage of finished work to install subsequent components.

END OF SECTION



SECTION 26 32 00

PACKAGED GENERATOR ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

- A. The work under this section includes providing and installing packaged standby power systems to supply electrical power to equipment shelters.
- B. Related Sections:
  - 1. Section 26 36 00 – Transfer Switches
  - 2. Section 33 11 00 – LP Fuel Systems

1.2 DESCRIPTION OF SYSTEM AND SITE

- A. Provide industrial grade standby power system(s) to supply electrical power to shelter(s) at 120/240 Volt, 60 Hertz, Single Phase. Generators shall consist of a liquid cooled spark-ignited engine, a synchronous AC alternator, and system controls with all necessary accessories for a complete operating system, including but not limited to the items as specified hereinafter.
- B. Packaged generator systems are required at (1) site(s). The generator size(s) and type(s) required are as follows:
  - 1. Jefferson Main Tower: 45kW/45kVA, 200 Amps, 120/240V, 1Phase LP fueled
- C. Each genset shall be applied at the listed ambient and elevation. Bidders to submit the generator's rated power output at 104 ambient (°F) and 909 elevation (Ft).
- D. Bidders are to submit the genset's sound level in dBA at 23 ft based on the configuration specified. Each genset shall meet site noise requirements of 75 dBA at 23 feet.
- E. The on-site LP gas pressure will be delivered in the range of 11 - 14 inches of water column.
- F. Generator systems shall be rated at 0.8 power factor for 3Phase units and 1.0 power factor for 1Phase units.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- A. An electric generating system, consisting of a prime mover, generator, governor, coupling and all controls, must have been tested, as a complete unit, on a representative engineering prototype model of the equipment to be sold.
- B. The generator set must conform to applicable NFPA requirements.

- C. The generator set must be available with the Underwriters Laboratories listing (UL2200) for a stationary engine generator assembly.
- D. The generator set must be pre-certified to meet EPA federal emission requirements for stationary standby. On-site emission testing & certification will not be acceptable for standby applications.

#### 1.4 MANUFACTURER QUALIFICATIONS

- A. The system shall be supplied by an original equipment manufacturer (OEM) who has been regularly engaged in the production of engine-alternator sets, automatic transfer switches, and associated controls for a minimum of 25 years, thereby identifying one source of supply and responsibility.
- B. Approved generator suppliers include:
  - 1. Generac Industrial Power (no substitutions)
- C. The manufacturer shall have printed literature and brochures describing the standard series specified, not a one of a kind fabrication.
- D. Manufacturer's authorized service representative shall meet the following criteria:
  - 1. Certified, factory trained, industrial generator technicians
  - 2. Service support 24/7
  - 3. Service location within 200 miles
  - 4. Response time of 4 hours
  - 5. Service & repair parts in-stock at performance level of 95%
  - 6. Offer optional remote monitoring and diagnostic capabilities

#### 1.5 SUBMITTALS

- A. Submit the following product data:
  - 1. Engine Generator specification sheet
  - 2. Controls specification sheet(s)
  - 3. Installation / Layout dimensional drawing
  - 4. Wiring schematic
  - 5. Sound data
  - 6. Emission certification
  - 7. Warranty statement
  - 8. Installation instructions

### PART 2 PRODUCTS

#### 2.1 ENGINE

- A. Engine Rating and Performance
  - 1. The prime mover shall be a liquid cooled, spark-ignited, 4-cycle engine (or Diesel if specified). It shall have adequate horsepower to achieve specified rated kW/KVA output.

2. The engine shall support a 100% load step.
  3. The generator system shall support generator start-up and load transfer within 10 seconds.
  4. The generator shall accept a load step of 100% of rated kW with a maximum frequency dip of 12 Hz.
- B. Engine Oil System
1. Full pressure lubrication shall be supplied by a positive displacement lube oil pump. The engine shall have a replaceable oil filter(s) with internal bypass and replaceable element(s).
  2. The engine shall operate on mineral based oil. Synthetic oils shall not be required, but may be used for protection in extreme conditions.
- C. Engine Cooling System
1. The engine is to be cooled with a unit mounted radiator, fan, water pump, and closed coolant recovery system. The coolant system shall include a coolant fill box which will provide visual means to determine if the system has adequate coolant level. The radiator shall be designed for operation in 122 degrees F, (50 degrees C) ambient temperature.
  2. The engine shall have (a) unit mounted, thermostatically controlled water jacket heater(s) to aid in quick starting. The wattage shall be as recommended by the manufacturer
  3. Engine coolant and oil drain extensions, equipped with pipe plugs and shut-off valves, must be provided to the outside of the mounting base for cleaner and more convenient engine servicing.
  4. A radiator fan guard must be installed for personnel safety that meets UL and OSHA safety requirements.
- D. Engine Starting System
1. Starting shall be by a solenoid shift, DC starting system.
  2. The engine's cranking batteries shall be lead acid. The batteries shall be sized per the manufacturer's recommendations. The batteries supplied shall meet NFPA 110 cranking requirements of 90 seconds of total crank time. Battery specifications (type, amp-hour rating, cold cranking amps) to be provided in the submittal.
  3. The genset shall have an engine driven, battery charging alternator with integrated voltage regulation.
  4. The genset shall have an automatic dual rate, float equalize, 10 amp battery charger. The charger must be protected against a reverse polarity connection. The chargers charging current shall be monitored within the generator controller to support remote monitoring and diagnostics. The battery charger is to be factory installed on the generator set.
  5. Thermostatically controlled battery blanket heaters, sized by the manufacturer, are to be provided to maximize the batteries cold cranking capabilities.
- E. Engine Fuel System
1. LP Vapor Systems:
    - a. The engine shall be configured to operate on LP vapor fuel.

- b. The engine shall utilize a fuel system inclusive of fuel-air mixer, secondary gas regulator, low gas pressure switch, and fuel shut-off solenoid.
  - c. The engines internal fuel connections shall be terminated to the generator frame via an NPT fitting for easy installation. A flex fuel line shall be supplied with the unit.
- F. Engine Controls
  - 1. Engine speed shall be controlled with an integrated isochronous governor function with no change in alternator frequency from no load to full load. Steady state regulation is to be 0.25%.
  - 2. Engine sensors used for monitoring and control are to be conditioned to a 4-20ma signal level to enhance noise immunity.
  - 3. All engine sensor connections shall be sealed to prevent corrosion and improve reliability.
- G. Engine Exhaust and Intake
  - 1. The engine exhaust emissions shall meet the EPA emission requirements for standby power generation.
  - 2. The manufacturer shall supply its recommended stainless steel, flexible connector to couple the engine exhaust manifold to the exhaust system. A rain cap will terminate the exhaust pipe after the silencer. All components must be properly sized to assure operation without excessive back pressure when installed.
  - 3. The manufacturer shall supply a critical grade exhaust silencer as standard. For applications with site specific sound requirements (reference section 1.2), the silencer shall be selected to achieve site sound levels.
  - 4. For all gensets (interior and exterior installations), all exhaust piping from the turbo-charger discharge to the silencer shall be thermally wrapped to minimize heat dissipation inside the enclosure or generator room.
  - 5. The engine intake air is to be filtered with engine mounted, replaceable, dry element filters.

## 2.2 ALTERNATOR

- A. The alternator shall be the voltage and phase configuration as specified in section 1.2.
- B. The alternator shall be a 4-pole, revolving field, stationary armature, synchronous machine. The excitation system shall utilize a brushless exciter with a three phase full wave rectifier assembly protected against abnormal transient conditions by a surge protector. Photo-sensitive components will not be permitted in the rotating exciter.
- C. Single phase alternators shall be four lead. All leads must be extended into a NEMA 1 connection box for easy termination. A fully rated, isolated neutral connection must be included by the generator set manufacturer.
- D. The alternator shall use a single, sealed bearing design. The rotor shall be connected to the engine flywheel using flexible drive disks. The stator shall be direct connected to the engine to ensure permanent alignment.

- E. The alternator shall meet temperature rise standards of UL2200 (120 degrees C). The insulation system material shall be class "H" capable of withstanding 150 degrees C temperature rise.
- F. The alternator shall be protected against overloads and short circuit conditions by advanced control panel protective functions. The control panel is to provide a time current algorithm that protects the alternator against short circuits. To ensure precision protection and repeatable trip characteristics, these functions must be implemented electronically in the generator control panel.

## 2.3 CONTROLS

- A. The generator control system shall be a fully integrated microprocessor based control system for standby emergency engine generators meeting all requirements of NFPA 110 level 1.
- B. The generator control system shall be a fully integrated control system enabling remote diagnostics and easy building management integration of all generator functions. The generator controller shall provide integrated and digital control over all generator functions including: engine protection, alternator protection, speed governing, voltage regulation, air-fuel-ratio control (as required) and all related generator operations. The generator controller must also provide seamless digital integration with the engine's electronic engine control module (ECM) if so equipped. Generator controller's that utilize separate voltage regulators and speed governors or do not provide seamless integration with the engine management system are considered less desirable.
- C. The control system shall provide an environmentally sealed design including encapsulated circuit boards and sealed automotive style plugs for all sensors and circuit board connections. The use of non-encapsulated boards, edge cards, and pc ribbon cable connections are considered unacceptable.
- D. Circuit boards shall utilize surface mount technology to provide vibration durability. Circuit boards that utilize large capacitors or heat sinks must utilize encapsulation methods to securely support these components.
- E. A predictive maintenance algorithm that alarms when maintenance is required. The controller shall have the capability to call out to the local servicing dealer when maintenance is required.
- F. Diagnostic capabilities should include time-stamped event and alarm logs, ability to capture operational parameters during events, simultaneous monitoring of all input or output parameters, callout capabilities, support for multi-channel digital strip chart functionality and .2 msec data logging capabilities.
- G. In addition to standard NFPA 110 alarms, the application loads should also be protected through instantaneous and steady state protective settings on system voltage, frequency, and power levels.

- H. The control system shall provide pre-wired customer use I/O: 8 relay outputs (user definable functions), communications support via RS232, RS485. Additional I/O must be an available option.
  - 1. The following alarm conditions via form C contacts shall be provided:
    - a. Generator Run
    - b. Generator Fail
    - c. Generator Disable
    - d. Generator Low Coolant Level
    - e. Generator High Battery Voltage
    - f. Generator Low Battery Voltage
    - g. Generator Low Fuel
  - 2. All required generator alarms shall be wired to the alarm R66 block located in the shelter.
- I. Customer I/O shall be software configurable providing full access to all alarm, event, data logging, and shutdown functionality. In addition, custom ladder logic functionality inside the generator controller shall be supported to provide application support flexibility. The ladder logic function shall have access to all the controller inputs and customer assignable outputs.
- J. The control panel will display all user pertinent unit parameters including: engine and alternator operating conditions; oil pressure and optional oil temperature; coolant temperature and level alarm; fuel level (where applicable); engine speed; DC battery voltage; run time hours; generator voltages, amps, frequency, kilowatts, and power factor; alarm status and current alarm(s) condition per NFPA 110 level 1.

## 2.4 ENGINE / ALTERNATOR PACKAGING

- A. The engine/alternator shall be mounted with internal vibration isolation onto a welded steel base. These units shall not need external vibration isolation for normal pad mounted applications.
- B. Mainline Breakers
  - 1. (1) mainline, 80% rated thermal magnetic circuit breaker(s) carrying the UL mark shall be factory installed. The breaker(s) shall be rated as follows: (1) 200 Amps. The line side connections are to be made at the factory. Output lugs shall be provided for load side connections.

## 2.5 WEATHERPROOF ENCLOSURE

- A. Outdoor gensets shall be packaged with an insulated sound attenuating weather protective rodent proof enclosure.
- B. The enclosure shall be completely lined with sound deadening material. This material must be of a self-extinguishing design.
- C. The enclosure shall be made of steel with a minimum thickness of 14 gauge. The enclosure is to have hinged, removable doors to allow access to the engine, alternator and control panel. The hinges shall allow for door fit adjustment. Hinges and all exposed

fasteners will be stainless steel or JS5000. The use of pop-rivets weakens the paint system and not allowed on external painted surfaces. Each door will have lockable hardware with identical keys.

- D. The enclosure shall be coated with electrostatic applied powder paint, baked and finished to manufacturer's specifications. The color will be manufacturer's standard.
- E. The enclosure shall utilize an upward discharging radiator hood. Due to concerns relative to radiator damage, circulating exhaust, and prevailing winds, equipment without a radiator discharge hood will not be acceptable.
- F. The genset silencer shall be mounted on the discharge hood of the enclosure. Due to architectural concerns, silencers mounted on the top of the generator enclosure are not acceptable. Gensets with silencers mounted inside the main generator compartment are acceptable only if the silencer is thermally wrapped to minimize heat stress on the surrounding components.

## 2.6 MISCELLANEOUS EQUIPMENT

- A. Load Center: Provide and install 120V, 30A Load Center within the enclosure with branch circuits and duplex receptacles to power the following items:
  - 1. Battery Charger
  - 2. Block Heater
  - 3. Battery Warmer
  - 4. Duplex receptacles to include box with hinged cover suitable for wet/dry locations.
- B. Remote Emergency Stop Switch: Provide and install (1) weather proof mushroom type emergency off switches to turn off generator. Switch shall have a clear, hinged cover to protect from accidental tripping. Mount the switch in the outdoor enclosure or generator room by door with a plaque stating "Generator Emergency Off Switch".
- C. Provide all software and associated "dongles" or "access keys" to allow for remote system monitoring.

## 2.7 LOOSE ITEMS

- A. Supplier to itemize loose parts that require site mounting and installation. Preference will be shown for gensets that factory mount items like mufflers, battery chargers, etc.
- B. Spare Parts:
  - 1. Fuses: One spare set
  - 2. Filters: One spare set (air, fuel, oil)

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that required utilities are available in proper location and ready for use.
- B. Coordinate generator slab dimensions, locations for conduit stub ups and location for LP fuel entry into generator enclosure with generator supplier.

### 3.2 FACTORY TESTING

- A. Before shipment of the equipment, the engine-generator set shall be tested under rated load for performance and proper functioning of control and interfacing circuits. Tests shall include:
  - 1. Verify voltage & frequency stability.
  - 2. Verify transient voltage & frequency dip response.
  - 3. Load test the generator for 30 minutes.
  - 4. Load testing to be performed at rated power factor.
- B. Tests shall be completed using both types of fuel sources when dual fuel units are specified.

### 3.3 INSTALLATION

- A. Install complete electrical generating system including all external fuel connections in accordance with requirements of NEC, NFPA and the manufacturer's instructions.
- B. Generator set shall be anchored to the concrete generator slab. All openings shall be sealed shut such that the entire system is weather and rodent proof.
- C. Contractor shall provide all required fuel during testing.
- D. Complete all alarm wiring from the generator system to the R66 punch block located within the shelter.

### 3.4 SERVICE

- A. Supplier of the genset and associated items shall have permanent service facilities in this trade area. These facilities shall comprise a permanent force of factory trained service personnel on 24 hour call, experienced in servicing this type of equipment, providing warranty and routine maintenance service to afford the owner maximum protection. Delegation of this service responsibility for any of the equipment listed herein will not be considered fulfillment of these specifications. Service contracts shall also be available.

### 3.5 PREVENTATIVE MAINTENANCE

- A. The standby electric generating system shall include a (2) year preventative maintenance plan effective on the date of successful load testing. All preventative maintenance, as



recommended by the manufacturer, shall be completed within the warranty period by the servicing provider without cost to the Owner.

- B. Options for extension of the preventative maintenance plan after the initial period shall also be provided.

### 3.6 WARRANTY

- A. The standby electric generating system components, complete genset and instrumentation panel shall be warranted by the manufacturer against defective materials and factory workmanship for a period of two (2) years. An option to extend the warranty period to a Five (5) year warranty shall be available. Such defective parts shall be repaired or replaced at the manufacturer's option, free of charge for parts, labor and travel.
- B. The warranty period shall commence when the standby power system is successfully load tested. Multiple warranties for individual components (engine, alternator, controls, etc.) will not be acceptable. Satisfactory warranty documents must be provided. Also, in the judgment of the specifying authority, the manufacturer supplying the warranty for the complete system must have the necessary financial strength and technical expertise with all components supplied to provide adequate warranty support.

### 3.7 STARTUP AND CHECKOUT

- A. The supplier of the electric generating plant and associated items covered herein shall provide factory trained technicians to checkout the completed installation and to perform an initial startup inspection to include:
  - 1. Ensuring the engine starts (both hot and cold) within the specified time.
  - 2. Verification of engine parameters within specification.
  - 3. Verify no load frequency and voltage, adjusting if required.
  - 4. Test all automatic shutdowns of the engine-generator.
  - 5. Load Testing:
    - a. Perform a load test of the electric plant using primary fuel source, ensuring full load frequency and voltage are within specification by using building load.
    - b. Perform full load testing utilizing a portable test bank for four hours continuous, minimum. During the first two hours, step increase the load from 0% to 100% in at least six equal steps. At the end of two hours, continue running test at 100% load. Record the following in 20 minute intervals throughout the four hour test: kilowatts, amperes, voltage, coolant temperature, room temperature, generator frequency (Hz), oil pressure, fuel consumption.
    - c. After the generator has cooled down from the four hour test, shut it down and then simulate a power failure including operation of the transfer switch, automatic cycle, and automatic shutdown and return to normal.

### 3.8 TRAINING

- A. Training is to be supplied by the start-up technician for the end-user during commissioning. The training should cover basic generator operation and common generator issues that can be managed by the end-user.
- B. Provide 8 hours of training time for each system to be determined by the Owner.

### 3.9 OWNER'S MANUALS

- A. Three (3) sets of owner's manuals specific to the product supplied must accompany delivery of the equipment. General operating instruction, preventive maintenance, wiring diagrams, schematics and parts exploded views specific to this model must be included.

END OF SECTION

SECTION 26 36 00

TRANSFER SWITCHES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. The work under this section includes transfer switches (less than 600V) for standby generator systems of the size and quantity as noted in the drawings.
- B. Related Sections:
  - 1. Section 26 32 00 – Packaged Generator Assemblies

1.2 DESCRIPTION OF SYSTEM

- A. The transfer switch sizes and types required are as follows:
  - 1. Jefferson Main Tower: Standard Transition, 2 pole, 120/240VAC, 1 Phase, 200 Amp.

1.3 EQUIPMENT & MATERIALS FURNISHED BY OTHERS

- A. None.

1.4 WORK BY OTHERS

- A. None.

1.5 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in automatic transfer equipment with five years documented experience.

1.6 SUBMITTALS

- A. Submit product data showing overall dimensions, electrical connections, electrical ratings, all specified accessories, interlock methods, and environmental requirements.
- B. Submit manufacturer's installation, operation and maintenance instructions.

PART 2 PRODUCTS

2.1 AUTOMATIC TRANSFER SWITCH

- A. The automatic transfer switch shall be furnished by the manufacturer of the engine-generator set so as to maintain system compatibility and local service responsibility for

the complete emergency power system. It shall be listed by Underwriter's Laboratory, Standard 1008 with fuse or circuit breaker protection. Representative production samples of the transfer switch supplied shall have demonstrated through tests the ability to withstand at least 10,000 mechanical operation cycles. One operation cycle is the electrically operated transfer from normal to emergency and back to normal. Wiring must comply with NEC table 312.6. The manufacturer shall furnish schematic and wiring diagrams for the particular automatic transfer switch and a typical wiring diagram for the entire system.

## 2.2 RATINGS AND PERFORMANCE

- A. Transfer switches shall be rated for continuous operation in ambient temperatures of -20 degrees Fahrenheit (-30 degrees Celsius) to +140 degrees Fahrenheit (+60 degrees Celsius). Main power switch contacts shall be rated for 600 VAC minimum. Each transfer switch supplied shall have a minimum withstand and closing rating when fuse protected of 200,000 amperes. Where the line side over current protection is provided by circuit breakers, the short circuit withstand and closing ratings shall be 14,000 amperes RMS. These RMS symmetrical fault current ratings shall be the rating listed in the UL listing or component recognition procedures for the transfer switch. All withstand tests shall be performed with the over current protective devices located external to the transfer switch.

## 2.3 CONSTRUCTION

- A. The transfer switch shall be double throw construction, positively electrically and mechanically interlocked to prevent simultaneous closing and mechanically held in both normal and emergency positions. Independent break before make action shall be used to positively prevent dangerous source to source connections. When switching the neutral, this action prevents the objectionable ground currents and nuisance ground fault tripping that can result from overlapping designs. The transfer switch shall be approved for manual operation. The electrical operating means shall be by electric solenoid. Every portion of the contactor is to be positively mechanically connected. No clutch or friction drive mechanism is allowed, and parts are to be kept to a minimum. This transfer switch shall not contain integral over current devices in the main power circuit, including molded case circuit breakers or fuses.
- B. The transfer switch electrical actuator shall have an independent disconnect means to disable the electrical operation during manual switching. Maximum electrical transfer time in either direction shall be 160 milliseconds, exclusive of time delays. Main switch contacts shall be high pressure silver alloy with arc chutes and separate arcing contacts to resist burning and pitting for long life operation.

## 2.4 CONTROLS

- A. All control equipment shall be mounted on the inside of the cabinet door in a metal lockable enclosure with transparent safety shield to protect all solid state circuit boards. This will allow for ease of service access when main cabinet lockable door is open, but to prevent access by unauthorized personnel. Control boards shall have installed cover plates to avoid shock hazard while making control adjustments. The solid state voltage

sensors and time delay modules shall be plug-in circuit boards with silver or gold contacts for ease of service.

- B. A solid state under voltage sensor shall monitor all phases of the normal source and provide adjustable ranges for field adjustments for specific application needs. Pick-up and drop-out settings shall be adjustable from a minimum of 70% to a maximum of 95% of nominal voltage. A utility sensing interface shall be used, stepping down system voltage of 240/120 VAC 1 phase to 24VAC, helping to protect the printed circuit board from voltage spikes and increasing personnel safety when troubleshooting.
- C. Signal the engine-generator set to start in the event of a power interruption. A set of contacts shall close to start the engine and open for engine shutdown. A solid state time delay start, adjustable, .1 to 10 seconds, shall delay this signal to avoid nuisance start-ups on momentary voltage dips or power outages.
- D. Transfer the load to the engine-generator set after it reached proper voltage, adjustable from 70-90% of system voltage, and frequency, adjustable from 80-90% of system frequency. A solid state time delay, adjustable from 5 seconds to 3 minutes, shall delay this transfer to allow the engine-generator to warm-up before application of load. There shall be a switch to bypass this warm-up timer when immediate transfer is required.
- E. Retransfer the load to the line after normal power restoration. A return to utility timer, adjustable from 1-30 minutes, shall delay this transfer to avoid short term normal power restoration.
- F. The operating power for transfer and retransfer shall be obtained from the source to which the load is being transferred. Controls shall provide an automatic retransfer of the load from emergency to normal if the emergency source fails with the normal source available.
- G. Signal the engine-generator to stop after the load retransfers to normal. A solid state engine cool down timer, adjustable from 1-30 minutes, shall permit the engine to run unloaded to cooldown before shutdown. Should the utility power fail during this time, the switch will immediately transfer back to the generator.
- H. Provide an engine minimum run timer, adjustable from 5-30 minutes, to ensure an adequate engine run period.
- I. The transfer switch shall have a time delay neutral feature to provide a time delay, adjustable from 0.1-10 seconds, during the transfer in either direction, during which time the load is isolated from both power sources. This allows residual voltage components of motors or other inductive loads (such as transformers) to decay before completing the switching cycle. A switch will be provided to bypass all transition features when immediate transfer is required.
- J. The transfer switch shall have an in phase monitor which allows the switch to transfer between live sources if their voltage waveforms become synchronous within 20 electrical degrees within 10 seconds of transfer initiation signal. A switch must be provided to bypass this feature if not required.

- K. If the in phase monitor will not allow such a transfer, the control must default to time delay neutral operation. Switches with in phase monitors which do not default to time delay neutral operation are not acceptable.
- L. Front mounted controls shall include a selector switch to provide for a NORMAL TEST mode with full use of time delays, FAST TEST mode which bypasses all time delays to allow for testing the entire system in less than one minute, or AUTOMATIC mode to set the system for normal operation.
- M. Provide bright lamps to indicate the transfer switch position in either UTILITY (white) or EMERGENCY (red). A third lamp is needed to indicate STANDBY OPERATING (amber). These lights must be energized from utility or the engine-generator set.
- N. Provide manual operating handle to allow for manual transfer. This handle must be mounted inside the lockable enclosure so accessible only by authorized personnel.
- O. Provide a maintenance disconnect switch to prevent load transfer and automatic engine start while performing maintenance. This switch will also be used for manual transfer switch operation.
- P. Provide LED status lights to give a visual readout of the operating sequence. This shall include utility on, engine warm-up, standby ready, transfer to standby, in phase monitor, time delay neutral, return to utility, engine cool down and engine minimum run. A "signal before transfer" lamp shall be supplied to operate from optional circuitry.

## 2.5 MISCELLANEOUS EQUIPMENT

- A. The transfer switch mechanism and controls shall be mounted in a NEMA 1 indoor enclosure.
- B. The following options are to be provided by the transfer switch manufacturer.
  - 1. A second set of DPDT (form C), 10 ampere, 250 volt auxiliary contacts, operated by the transfer switch mechanism shall be installed.
  - 2. The following alarm conditions via form C contacts shall be provided:
    - a. ATS Normal
    - b. ATS Standby
    - c. No Generator or AC Power
    - d. Loss of utility mains power
  - 3. All required generator alarms shall be wired to the alarm R66 block located in the shelter.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install transfer switch in accordance with requirements of NEC and the manufacturer's instructions.

3.2 FIELD ADJUSTMENTS

- A. The contractor shall field adjust all timing and voltage settings of the transfer switch as necessary for proper operation of the switch, related loads and sources.

3.3 WARRANTY

- A. Warranty for transfer switches shall be the same requirements as set forth for the Packaged Generator Assemblies.

END OF SECTION

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SECTION 31 05 13

SOILS FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Subsoil materials.
  - 2. Topsoil materials.
- B. Related Sections:
  - 1. Section 31 05 16 - Aggregates for Earthwork.
  - 2. Section 31 23 16.13 - Trenching.
  - 3. Section 31 23 23.13 - Backfill.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
  - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 2. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.3 SUBMITTALS

- A. Materials Source: Submit name, source location and supplier of imported materials.

1.4 QUALITY ASSURANCE

- A. Furnish each subsoil and topsoil material from single source throughout the Work.

PART 2 PRODUCTS

2.1 SUBSOIL MATERIALS

- A. Subsoil Type (S1) General Fill:
  - 1. Excavated and re-used material or local borrow.
  - 2. Graded.
  - 3. Free of lumps larger than 2 inches, rocks larger than 2 inches, and debris.

4. Conforming to ASTM D2487 Group Symbol GW, GP, GP-GM, SW, SP and SP-SM.
  5. Use of clay soils with written permission of Architect.
- B. Subsoil Type (S2) Select Fill:
1. Excavated and re-used material or local borrow.
  2. Graded.
  3. Free of lumps larger than 2 inches, rocks larger than 2 inches, and debris.
  4. Conforming to ASTM D2487 Group Symbol GW, GP, SW and SP.
  5. Material with less than 15% passing the No. 200 sieve.

## 2.2 TOPSOIL MATERIALS

- A. Topsoil Type (S3) Onsite Topsoil:
1. Excavated and reused material.
  2. Reasonably free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds and foreign matter.
  3. Conforming to ASTM D2487 Group Symbol OH.
- B. Topsoil Type (S4) Imported Topsoil:
1. Imported borrow.
  2. Friable loam.
  3. Graded / Screened.
  4. Free of roots, rocks larger than 1/2 inch, subsoil, debris, large weeds, and foreign matter.
  5. Containing minimum of 8 percent and maximum of 25 percent inorganic matter.
  6. Conforming to ASTM D2487 Group Symbol OH.

## PART 3 EXECUTION

### 3.1 EXCAVATION

- A. Excavate subsoil and topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.
- B. Stockpile excavated material meeting requirements for subsoil materials and topsoil materials.
- C. Remove excess excavated materials not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for subsoil materials and topsoil materials from site.

### 3.2 STOCKPILING

- A. Stockpile materials on site at locations designated by Architect/Engineer.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.

- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Stockpile topsoil 15 feet high maximum.
- E. Prevent intermixing of soil types or contamination.
- F. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

### 3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

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SECTION 31 05 16

AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Coarse aggregate materials.
  - 2. Fine aggregate materials.
- B. Related Sections:
  - 1. Section 31 05 13 - Soils for Earthwork
  - 2. Section 31 23 17 – Rough Grading.
  - 3. Section 31 23 17 - Trenching.
  - 4. Section 31 23 23 - Fill.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
  - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
  - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  - 4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
  - 5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 SUBMITTALS

- A. Materials Source: Submit name and location of imported materials suppliers.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Provide aggregate materials from sources approved by State of Wisconsin Department of Transportation.

## PART 2 PRODUCTS

### 2.1 COARSE AGGREGATE MATERIALS

- A. Coarse Aggregate Type (A1) Class A Crushed within the following limits:

Sieve Size	Percent Passing
1 inch	100
3/4 inch	95 to 100
1/2 inches	70 to 90
No. 4	30 to 55
No. 8	15 to 40
No. 200	6 to 16

- B. Coarse Aggregate Type (A2) 1 1/4-Inch Dense Graded Base Aggregate within the following limits:

Sieve Size	Percent Passing
1 1/4 inches	95 to 100
1 inch	-
3/4 inch	70 to 93
3/8 inches	45 to 80
No. 4	30 to 63
No. 10	20 to 48
No. 40	8 to 28
No. 200	2 to 12

- C. Coarse Aggregate Type (A3) 3-Inch Dense Graded Base Aggregate within the following limits:

Sieve Size	Percent Passing
3 inches	90 to 100
1 1/2 inches	60 to 85
1 inch	-
3/4 inch	40 to 65
3/8 inches	-
No. 4	15 to 40
No. 10	10 to 30
No. 40	5 to 20

No. 200	2 to 12
---------	---------

- D. Coarse Aggregate Type (A4) 3/4-Inch Clear Crushed Stone: Crushed clear stone or gravel; within the following limits:

Sieve Size	Percent Passing
1 inch	100
3/4 inch	90 - 100
5/8 inches	-
3/8 inches	20 to 55
No. 4	0 to 10
No. 8	0 to 5

- E. Coarse Aggregate Type (A5) 3/8 - Inch Clear Crushed Stone Chips: Crushed clear stone or gravel; within the following limits:

Sieve Size	Percent Passing
1 inch	-
1/2 inch	100
3/8 inches	90 to 100
No. 8	0 to 15
No. 30	0 to 3

- F. Aggregate Type (A6) Breaker Run (Breaker): Crushed stone or concrete with nominal size of 3 in.

Sieve Size	Percent Passing
5 inch	90 to 100
1-1/2 inch	20 to 50
No. 10	0 to 10

- G. Aggregate Type (A7) Pea Gravel: Natural stone; washed, free of clay, shale and organic matter.

1. Graded in accordance with ASTM C136, within the following limits:
  - a. Minimum Size: 1/4-inch
  - b. Maximum Size: 3/8-inch

## 2.2 FINE AGGREGATE MATERIALS

- A. Fine Aggregate Type (A8) Granular Backfill Grade No. 1:

Sieve Size	Percent Passing
1/2 inch	100
3/8 inch	85 to 100
No. 4	10 to 30
No. 8	0 to 8
No. 16	0 to 5

- B. Fine Aggregate Type (A9) Granular Backfill Grade No. 2: Not Applicable.
- C. Fine Aggregate Type (A10) Bedding Sand (Sand): Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, and organic matter; graded in accordance with ASTM C136 within the following limits:

Sieve Size	Percent Passing
1-Inch	100
No. 16	45 to 80
No. 200	2 to 10

## 2.3 SOURCE QUALITY CONTROL

- A. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698. ASTM D1557. AASHTO T180. ASTM D4318. ASTM C136.
- B. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698. ASTM D1557. AASHTO T180. ASTM D4318. ASTM C136.
- C. When tests indicate materials do not meet specified requirements, change material and retest.

## PART 3 EXECUTION

### 3.1 EXCAVATION

- A. Excavate aggregate materials from on-site locations indicated or designated by Architect/Engineer as specified in Section 31 23 00.
- B. Stockpile excavated material meeting requirements for coarse aggregate materials and fine aggregate materials.
- C. Remove excess excavated materials coarse aggregate materials and fine aggregate materials not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for coarse aggregate materials and fine aggregate materials from site.



### 3.2 STOCKPILING

- A. Stockpile materials on site at locations indicated designated by Architect/Engineer.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Stockpile unsuitable hazardous materials on impervious material and cover to prevent erosion and leaching, until disposed of.

### 3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

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SECTION 31 10 00

SITE CLEARING

1.1 SUMMARY

- A. Section Includes:
  - 1. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to clear and grub the site of existing vegetation as required in these specifications and on the drawings.
- B. Related Sections:
  - 1. Section 31 05 13- Soils for Earthwork
  - 2. Section 31 23 23 - Fill

1.2 CLEARING LIMITS

- A. Confine clearing and grubbing operations to the limits as indicated on the drawings. In the absence of such a designation on the drawings, confine work to the minimum area reasonably necessary to undertake the work as determined by the Owner's Project Representative. Clearing and grubbing operations shall not extend past the property line or easement line without prior approval of the Construction Representative.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 GENERAL

- A. Limits of clearing and grubbing shall be as shown on plans. When selective pruning and removal is specified, limit work to only those plants or limbs shown drawings or scheduled.
- B. Remove trees, stumps, roots, brush, other vegetation, debris, and other items that interfere with new construction.
- C. To minimize erosion, limit heavy equipment travel only to that necessary to complete clearing and grubbing.
- D. Repair damaged erosion control features immediately.

### 3.2 CUTTING

- A. Fell and prune trees in manner so as not to damage adjacent structures, site features or other plants not scheduled for removal. Use tag lines and other devices as necessary to control falling tree and limbs.
- B. When pruning, limit removal only to those limbs shown on plans or that which is necessary to complete other sitework.
- C. When pruning, make cuts near trunk, but beyond branch collar. If no branch collar is present, make a vertical cut near where the limb meets the trunk. Do not cut branch collar.
- D. Use sharp tools and make clean cuts.
- E. Application of wound paint is not necessary.

### 3.3 CHIPPING

- A. Unless otherwise prohibited by project plans and specifications or local regulations, Contractor shall chip cleared material and dispose of it onsite. Materials that are too large to be chipped or ground in place shall be disposed of off site.
- B. Chipped material shall be thin spread or blow over non disturbed areas of the site. Large segregated piles of chippings shall not be left onsite, unless requested by the owner.
- C. Protect all existing and proposed utility structures and waterways from collecting chippings.

### 3.4 ONSITE BURIAL OF MATERIALS

- A. Onsite burials of materials in borrow pits or other locations is not permitted.

### 3.5 OFFSITE BURIAL OF MATERIALS

- A. Clearing and grubbing debris shall be disposed of at facilities designed to accept the material that is being disposed. Follow all local, state and federal regulations.

### 3.6 GRUBBING

- A. Remove Grubbing operations may be completed by removal of stump section or by grinding.
- B. Remove stumps, logs, roots, other organic matter located within proposed building excavations completely.
- C. Remove stumps, logs, roots, other organic matter located within proposed pavements and structures to the depth indicated:
  - 1. Walks: 24 inches below subgrade

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2. Roads and drives and parking areas: 36 inches below subgrade
  3. Concrete slabs: 24 inches below subgrade
  4. Lawn areas: 12 inches
  5. Footings and foundations for signs, lights, etc.: 18 inches below footing base
- D. Depressions resulting from grubbing operations shall be backfilled in accordance with Section 31 23 23 – Fill.

END OF SECTION

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## SECTION 31 22 13

### ROUGH GRADING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Excavating topsoil.
  - 2. Excavating subsoil.
  - 3. Cutting, grading, filling, and compacting site
  - 4. Subgrade approval & Proof-Roll
  - 5. Excavation Below Subgrade (EBS)
  - 6. Geotextile Subgrade Stabilization
- B. Related Sections:
  - 1. Section 31 05 13 - Soils for Earthwork
  - 2. Section 31 05 16 - Aggregates for Earthwork
  - 3. Section 31 23 16 – Excavation
  - 4. Section 31 23 17 - Trenching
  - 5. Section 31 23 23 - Fill

##### 1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
  - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).

##### 1.3 SUBMITTALS

- A. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- B. Materials Source: Submit name, source location and supplier of imported materials.

##### 1.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

## 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C136, ASTM D2419, and ASTM D2434.
- B. Proof-roll subgrade in the presence of the Engineer.
- C. Warrant work under this section against settlement for a period of (1) year after substantial completion.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Topsoil: (S3) Onsite and (S4) Imported as specified in Section 31 05 13.
- B. Subsoil Fill: (S1) General and (S2) Select as specified in Section 31 05 13.
- C. Structural Fill: (S2) Select and (A7) Granular Grade No. 1 as specified in Sections 31 05 13 and 31 05 16.
- D. Breaker Run: (A6) Breaker Run as specified in Section 31 05 16.
- E. Geotextile Fabric for Subgrade Stabilization: Geotextile fabric installed over subgrade and under aggregate base course shall be a high performance non-biodegradable polypropylene geotextile specifically designed for soil stabilization and soil reinforcement applications. Acceptable products include WisDOT SSSHC Section 645.2.2, Geotextile Fabric Type SAS with the following test values:

Test	Method	Value
Minimum Tensile Strength	ASTM D4632	170 lb
Min. Puncture Strength	ASTM D6241	350 lb
Max. Apparent Opening Size	ASTM D4751	No. 70
Min. Permittivity	ASTM D4491	0.32 s <sup>-1</sup>

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.



- B. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.

### 3.2 PREPARATION

- A. Call Local Utility Line Information service at not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company to remove and relocate utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

### 3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from entire site without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding 15 feet and protect from erosion.
- D. Remove excess topsoil not intended for reuse, from site.

### 3.4 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated, re-landscaped or re-graded.
- B. Do not excavate wet subsoil or excavate and process wet material to obtain optimum moisture content.
- C. When excavating through roots, perform Work by hand and cut roots with sharp axe.
- D. Remove excess subsoil not intended for reuse, from site.
- E. Benching Slopes: Horizontally bench existing slopes greater than 1: 4 to key placed fill material to slope to provide firm bearing.
- F. Stability: Replace damaged or displaced subsoil as specified for fill.

### 3.5 FILLING

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Place fill material in continuous layers and compact in accordance with schedule at end of this section.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.
- E. Make grade changes gradual. Blend slope into level areas.
- F. Repair or replace items indicated to remain damaged by excavation or filling.
- G. Remove surplus materials from site.

### 3.6 SUBGRADE APPROVAL AND PROOF-ROLL

- A. Prior to placing aggregate base course materials in traffic areas contact Geotechnical Engineer to schedule inspection of subgrade and proof rolling. Provide minimum of 24 hrs confirmed notice. All proof rolling shall be completed in the presence of the Geotechnical Engineer.
- B. To complete proof rolling, entire subgrade shall be provided with a relatively smooth surface, suitable for observing soil reaction during proof rolling.
- C. Contractor shall schedule and provide a fully loaded tri-axle dump truck for proof – rolling. Loaded truck shall have a minimum gross operating weight of 30 tons. Test shall be conducted with “tag” or “pusher” axles retracted from the ground. Other test rolling measures may be suitable provided they are approved by the Geotechnical Engineer.
- D. Test rolling shall be accomplished in a series of traverses parallel to the centerline of the pavement section. The truck shall traverse the length of the pavement section once for each 12’ of width. Additional passes along the traverse shall be completed as directed by the Engineer, to further define unsatisfactory subgrade.
- E. Soft areas, yielding areas, cracked areas or areas where rolling or wave action is observed shall be considered indicative of an unsatisfactory subgrade. Such areas shall be undercut or stabilized with geotextile fabric as outlined in subsequent subsections of this specification.
- F. Once the subgrade has been proof-rolled and approved, protect the soils from becoming saturated, frozen, or adversely altered.

### 3.7 UNDERCUTTING/EXCAVATION BELOW SUBGRADE (EBS)

- A. Excavate areas to be undercut to the depth specified using equipment with smooth cutting edge. Excavated undercut material that does not meet the specifications for fill needed elsewhere on site shall be removed from the site and legally disposed.
- B. Undercut areas shall be backfilled with 3-inch Breaker Run (A6) in maximum of 12" thick lifts (compacted). Breaker Run shall be compacted to 95% Modified Proctor dry density.
- C. Measure and document areas to be undercut in consultation with Engineer.
- D. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- E. Do not place fill on soft, muddy, or frozen surfaces.
- F. Work under this item shall include all excavating, backfilling, disposal and new materials necessary to complete the work.

### 3.8 GEOTEXTILE SUBGRADE STABILIZATION

- A. Installation of geotextile fabric for subgrade reinforcement shall be completed only when directed by the Engineer. Measure and document areas to be covered with geotextile fabric in consultation with Engineer.
- B. Install geotextile fabric per manufacturer's recommendations.

### 3.9 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1/20 foot from required elevation.

### 3.10 SCHEDULES

- A. Fill Under Landscaped or Grass Areas:
  - 1. Subsoil Fill:
    - a. To finished subgrade elevation: Place material in 12-inch max lifts, compact uniformly to 90 percent of maximum dry density.
- B. Fill Under Exterior Concrete, Asphalt Pavement or Gravel Areas:
  - 1. Structural Fill:
    - a. To within 3 feet of finished subgrade elevation: Place material in 12-inch max lifts, compact uniformly to 90 percent of maximum dry density.
    - b. From 3 feet below subgrade to finished subgrade elevation: Place material in 8-inch max lifts, compact uniformly to 95 percent of maximum dry density

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- C. Topsoil Fill:
  - 1. Topsoil Fill:
    - a. To finished grade elevation. 4-inches to 6-inches thick.

END OF SECTION

## SECTION 31 23 16

### EXCAVATION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Excavating for equipment building foundations.
  - 2. Excavating for access roads, compounds and parking areas.
  - 3. Excavating for slabs-on-grade.
  - 4. Excavating for site structures.
- B. Related Sections:
  - 1. Section 31 05 13 - Soils for Earthwork
  - 2. Section 31 05 16 - Aggregates for Earthwork
  - 3. Section 31 22 13 – Rough Grading
  - 4. Section 31 23 17 - Trenching
  - 5. Section 31 23 23 - Fill.

##### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 2. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- B. Local utility standards when working within 24 inches of utility lines.

#### PART 2 PRODUCTS – NOT USED

#### PART 3 EXECUTION

##### 3.1 PREPARATION

- A. Call One Call Service not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Verify locations of locally installed private utilities and conduits. Coordinate with building addition General Contractor and sub-contractors.
- C. Identify required lines, levels, contours, and datum.

- D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

### 3.2 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work.
- B. Excavate subsoil to accommodate building foundations, slabs-on-grade, paving and site structures.
- C. Excavate to working elevation for piling work.
- D. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity; perform compaction in accordance with specifications.
- E. Slope banks with machine to angle of repose or less until shored.
- F. Do not interfere with 45 degree bearing splay of foundations.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- H. Trim excavation. Remove loose matter.
- I. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.
- J. Notify Architect/Engineer of unexpected subsurface conditions.
- K. Correct areas over excavated as directed by Architect/Engineer.
- L. Remove excess and unsuitable material from site.
- M. Repair or replace items indicated to remain damaged by excavation.

### 3.3 FIELD QUALITY CONTROL

- A. Request visual inspection of foundation bearing surfaces by Architect/Engineer before installing subsequent work.
- B. Perform Proof-Roll (roll-test) of finished subgrade traffic areas in accordance with Section 31 22 13. Undercut unsatisfactory materials and replace with breaker run at no additional cost to Owner.

### 3.4 PROTECTION

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

- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION

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## SECTION 31 23 17

### TRENCHING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Excavating and backfilling site utility trenches for utilities services and grounding.
- B. Related Sections:
  - 1. Section 31 05 13 - Soils for Earthwork
  - 2. Section 31 05 16 - Aggregates for Earthwork
  - 3. Section 31 23 16 – Rough Grading
  - 4. Section 31 23 16 - Excavation
  - 5. Section 31 23 23 - Fill

##### 1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
  - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  - 4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

##### 1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

##### 1.4 SUBMITTALS

- A. Materials Source: Submit name, source location and supplier of imported fill materials.

##### 1.5 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.

- B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

## 1.6 QUALITY ASSURANCE

- A. Warrant trenching and backfilling work under this section against settlement for a period of (1) year after substantial completion.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Subsoil Fill: Type (S1) General Fill and (S2) Select as specified in Section 31 05 13.
- B. Structural Fill: (S2) Select and (A8) Granular Grade No. 1 as specified in Sections 31 05 13 and 31 05 16.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Call One Call Service or other Local Utility Line Information service not less than three working days before performing Work.
  - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.

### 3.2 TRENCHING

- A. Excavate subsoil required for utilities to utility service.
- B. Remove lumped subsoil, boulders, and rock over 6 inches in diameter.
- C. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements.

- D. Do not advance open trench more than 100 feet ahead of installed pipe.
- E. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- F. Excavate bottom of trenches a minimum of 6 inches and a maximum 12 inches wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- H. Do not interfere with 45 degree bearing splay of foundations.
- I. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- J. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Architect/Engineer until suitable material is encountered.
- K. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type Structural Fill and compact to density equal to or greater than requirements for subsequent backfill material.
- L. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- M. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Architect/Engineer.
- N. Remove excess subsoil not intended for reuse, from site.

### 3.3 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches more than 5 feet deep excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation.
- C. Design sheeting and shoring to be removed at completion of excavation work.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

### 3.4 UTILITY INSTALLATION

- A. Install utility within trench including required bedding and cover materials in accordance with the specifications for each utility.

### 3.5 BACKFILLING

- A. Do not leave more than 50 feet of trench open at end of working day.
- B. Protect open trench to prevent danger to the public.
- C. Backfill areas to contours and elevations with unfrozen materials.
- D. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- E. Place backfill material and compact in continuous layers in accordance with the schedule at the end of this section.
- F. Employ placement method that does not disturb or damage other work.
- G. Maintain optimum moisture content of backfill materials to attain required compaction density.
- H. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- I. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- J. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.
- K. Make gradual grade changes. Blend slope into level areas.
- L. Remove surplus backfill materials from site.
- M. Leave fill material stockpile areas free of excess fill materials.

### 3.6 TOLERANCES

- A. Top Surface of Backfilling Within Building Areas: Plus or minus 1/2 inch from required elevations.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

### 3.7 FIELD QUALITY CONTROL

- A. Perform Proof-Roll (roll-test) of finished backfilled areas within proposed traffic areas in accordance with Section 31 22 13. Undercut unsatisfactory materials and replace with breaker run at no additional cost to Owner.

### 3.8 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

### 3.9 SCHEDULE

- A. Trenches Under Landscaped or Grass Areas:
  - 1. Subsoil Fill:
    - a. To finished subgrade elevation: Place material in 12-inch max lifts, compact uniformly to 90 percent of maximum dry density.
- B. Trenches Under Exterior Concrete, Asphalt Pavement or Gravel Areas:
  - 1. Structural Fill:
    - a. To within 3 feet of finished subgrade elevation: Place material in 12-inch max lifts, compact uniformly to 90 percent of maximum dry density.
    - b. From 3 feet below subgrade to finished subgrade elevation: Place material in 8-inch max lifts, compact uniformly to 95 percent of maximum dry density

END OF SECTION

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## SECTION 31 23 23

### FILL

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Backfilling building perimeter to subgrade elevations.
  - 2. Backfilling site structures to subgrade elevations.
  - 3. Fill under slabs-on-grade.
  - 4. Fill under paving.
- B. Related Sections:
  - 1. Section 31 05 13 - Soils for Earthwork
  - 2. Section 31 05 16 - Aggregates for Earthwork
  - 3. Section 31 22 13 – Rough Grading
  - 4. Section 31 23 16 - Excavation
  - 5. Section 31 23 17 - Trenching

##### 1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
  - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
  - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 2. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>)).
  - 3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
  - 4. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

##### 1.3 SUBMITTALS

- A. Materials Source: Submit name, source location and supplier of imported fill materials.

##### 1.4 QUALITY ASSURANCE

- A. Warrant backfilling work under this section against settlement for a period of (1) year after substantial completion.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Subsoil Fill: Type S1 General Fill as specified in Section 31 05 13.
- B. Structural Fill: (S2) Select and (A8) Granular Grade No. 1 as specified in Sections 31 05 13 and 31 05 16.
- C. Breaker Run: (A6) Breaker Run as specified in Section 31 05 16.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify sub-drainage, damp-proofing, or waterproofing installation has been inspected.
- B. Verify structural ability of unsupported walls to support loads imposed by fill.
- C. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.

### 3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Compact subgrade to density requirements for subsequent backfill materials.
- C. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill and compact to density equal to or greater than requirements for subsequent fill material.
- D. Scarify subgrade surface to depth of 6 inch.
- E. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

### 3.3 FILLING

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place material in continuous layers and compact in accordance with the schedule at the end of this section.
- D. Employ placement method that does not disturb or damage other work.



- E. Maintain optimum moisture content of backfill materials to attain required compaction density.
- F. Backfill against supported foundation walls. Do not backfill against unsupported foundation walls.
- G. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- H. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.
- I. Make gradual grade changes. Blend slope into level areas.
- J. Remove surplus backfill materials from site.
- K. Leave fill material stockpile areas free of excess fill materials.

### 3.4 TOLERANCES

- A. Top Surface of Backfilling Within Building Areas: Plus or minus 1/2 inch from required elevations.
- B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.
- C. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

### 3.5 FIELD QUALITY CONTROL

- A. Perform Proof-Roll (roll-test) of finished filled traffic areas in accordance with Section 31 22 1 – Rough Grading.
- B. Undercut unsatisfactory materials and replace with breaker run at no additional cost to Owner.

### 3.6 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

### 3.7 SCHEDULE

- A. Backfilling Building Perimeters and Site Structures:
  - 1. Structural Fill:
    - a. To within 3 feet of finished subgrade elevation: Place material in 12-inch max lifts, compact uniformly to 90 percent of maximum dry density.

- b. From 3 feet below subgrade to finished subgrade elevation: Place material in 8-inch max lifts, compact uniformly to 95 percent of maximum dry density
- B. Fill Under Exterior Concrete, Asphalt Pavement or Gravel Areas:
  - 1. Structural Fill:
    - a. To within 3 feet of finished subgrade elevation: Place material in 12-inch max lifts, compact uniformly to 90 percent of maximum dry density.
    - b. From 3 feet below subgrade to finished subgrade elevation: Place material in 8-inch max lifts, compact uniformly to 95 percent of maximum dry density

END OF SECTION

SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Fence framework, fabric, and accessories.
  - 2. Excavation for post bases.
  - 3. Concrete foundation for posts and center drop for gates.
  - 4. Manual gates and related hardware.

1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM A121 - Standard Specification for Zinc-Coated (Galvanized) Steel Barbed Wire.
  - 2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - 3. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - 4. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
  - 5. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
  - 6. ASTM F567 - Standard Practice for Installation of Chain-Link Fence.
  - 7. ASTM F900 - Standard Specification for Industrial and Commercial Swing Gates.
  - 8. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
- B. Chain Link Fence Manufacturers Institute:
  - 1. CLFMI - Product Manual.

1.3 SYSTEM DESCRIPTION

- A. Fence Height: as indicated on Drawings.
- B. Line Post Spacing: At intervals matching plans not exceeding 10 feet.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
- B. Product Data: Submit data on fabric, posts, accessories, fittings and hardware.

## 1.5 QUALITY ASSURANCE

- A. Supply material in accordance with CLFMI - Product Manual.
- B. Perform installation in accordance with ASTM F567.

## 1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum of 5 years documented experience approved by manufacturer.

## 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver fence fabric and accessories in packed cartons or firmly tied rolls.
- B. Identify each package with manufacturer's name.
- C. Store fence fabric and accessories in secure and dry place.

# PART 2 PRODUCTS

## 2.1 MATERIALS

- A. Framing (Steel): ASTM F1083 Schedule 40 galvanized steel pipe, welded construction, minimum yield strength of 25 ksi; coating conforming to ASTM F1043 Type A on pipe exterior and interior.
- B. Fabric Wire (Steel): ASTM A392-11a - Zinc-Coated Steel Chain-Link Fence Fabric.
- C. Concrete: ASTM C94/C94M, Option A; Normal Portland Cement, 4,000 psi strength at 28 days.

## 2.2 COMPONENTS

- A. Line Posts: 2 1/2 inch OD Sch 40.
- B. Corner and Terminal Posts: 3 inch OD Sch 40.
- C. Gate Posts: 4 inch OD Sch 40.
- D. Top and Brace Rail: 1 5/8 inch OD Sch 40, plain end, sleeve coupled.
- E. Gate Frame: 2 inch OD Sch 40 for welded fittings and truss rod fabrication.

- F. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top salvage knuckle end closed, bottom selvage twisted.
- G. Tension Wire: 7 gage thick steel, single strand.
- H. Tension Band: 3/16 inch thick steel.
- I. Tension Strap: 3/16 inch thick steel.
- J. Tie Wire: Aluminum alloy steel wire.

## 2.3 ACCESSORIES

- A. Caps: Malleable iron galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; galvanized steel.
- C. Gate Hardware: Fork latch with gravity drop; two 180 degree gate hinges for each leaf,
- D. Multi-user gate lock: Tayhope or equivalent.

## 2.4 GATES

- A. General:
  - 1. Gate Types, Opening Widths and Directions of Operation: As indicated on Drawings.
  - 2. Factory assemble gates.
  - 3. Design gates for operation by one person.
- B. Swing Gates:
  - 1. Fabricate gates to permit 180 degree swing.
  - 2. Gates Construction: ASTM F900 with welded corners. Use of corner fittings is not permitted.

## 2.5 FINISHES

- A. Components and Fabric: Galvanized to ASTM A123/A123M for components; ASTM A153/A153M for hardware; ASTM A392 for fabric.
- B. Accessories: Same finish as framing.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ASTM F567.

- B. All line posts may be driven except where driven posts are not feasible. Drive post plumb and true to the required depths and elevations.
- C. Line Posts: Drive a minimum of 5 feet below finish grade.
- D. Corner, Gate and Terminal Posts: Set in concrete.
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail. Install brace rail one bay from end and gate posts.
- F. Install top rail through line post tops and splice with 6 inch long rail sleeves.
- G. Install center and bottom brace rail on corner gate leaves.
- H. Place fabric to match existing adjacent fence.
- I. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- J. Position bottom of fabric 1 inches above finished grade.
- K. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- L. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- M. Install bottom tension wire stretched taut between terminal posts.
- N. Support gates from gate posts. Do not attach hinged side of gate from building wall.
- O. Connect to existing fence at new terminal posts.
- P. Install posts with 6 inches maximum clear opening from end posts to buildings, fences and other structures.
- Q. Center and align posts. Verify vertical and top alignment of posts and make necessary corrections.

### 3.2 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From Indicated Position: 1 inch.

END OF SECTION

SECTION 33 11 10

LP FUEL SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. LP fuel tank
  - 2. Remote LP tank fuel level monitor system
  - 3. LP fuel piping system
- B. Related Sections:
  - 1. Section 26 32 00 – Packaged Generator Assemblies
  - 2. Section 31 23 17 - Trenching

1.2 SYSTEM SCHEDULE

- A. LP fuel systems are required at (7) sites. The tank sizes required at each site are as follows:
  - 1. Jefferson Main Tower – Reuse existing 1000 gal tank. New piping and level monitor system required.
  - 2. Johnson Creek – 500 gal.
  - 3. Waterloo - Reuse existing (2) 120 gal tanks. New piping and level monitor system required.
  - 4. Ixonia – 500 gal.
  - 5. Palmyra – 500 gal.
  - 6. Cambridge – 500 gal.
  - 7. Concord – 500 gal.
- B. Refer to the individual site drawings for LP fuel system configurations.

1.3 EQUIPMENT & MATERIALS FURNISHED BY OTHERS

- A. Jefferson Main Tower and Waterloo tanks are existing and will be reused.
- B. All LP tanks will be provided by Owner and delivered to the tower sites. Contractor is responsible for installation.
- C. All LP fuel will be provided by Owner.

1.4 WORK BY OTHERS

- A. None.

## 1.5 REFERENCES

- A. Abbreviations of standards and organizations referenced in other sections are as follows:

AGA American Gas Association

ANSI American National Standards Institute

ASME American Society of Mechanical Engineers

ASTM American Society for Testing and Materials

AWS American Welding Society

CGA Compressed Gas Association

EPA Environmental Protection Agency

GAMA Gas Appliance Manufacturers Association

MCA Mechanical Contractors Association

MSS Manufacturer's Standard Society of the Valve and Fitting Industry

NEC National Electric Code

NEMA National Electrical Manufacturers Association

NFPA National Fire Protection Association

UL Underwriters Laboratories Inc.

## 1.6 SUBMITTALS

- A. Submit shop drawings and/or product information for the following items:

1. LP fuel gas piping
2. Remote LP fuel level monitor system
3. Valves
4. Regulators

- B. For all equipment and systems as indicated above, mark each submittal with that specification section number. Mark the general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number as indicated in the contract documents.

## 1.7 QUALITY ASSURANCE

- A. Installer: LP Gas fuel system installer shall be certified and/or licensed for installation of such systems with the state in which it is being installed.
- B. Order all Type E and Type S steel pipe with heat numbers rolled, stamped, or stenciled to each length or each bundle, depending on the size of the pipe, and in accordance with the appropriate ASTM specification.



- C. Any installed material not meeting the specification requirements must be replaced with material that meets these specifications without additional cost to the Owner.

## 1.8 RECORD DRAWINGS

- A. Record on as-built drawings locations of all installed below grade piping.

## PART 2 PRODUCTS

### 2.1 LP FUEL TANK

- A. Tank shall be an above ground steel type with lockable cover all which are primed and painted suitable for outdoor environments.
- B. Tank shall include direct read gauge to monitor fuel level at the tank.

### 2.2 REMOTE LP FUEL LEVEL MONITOR SYSTEM

- A. System shall be a hard wired local stationary tank monitor system with remote read out located within the equipment building. System shall include:
  - 1. Remote monitor with field programmable high/low set points
  - 2. RS232 interface to PC for programming/saving parameters
  - 3. Alarm relay form "C", 10A dry contacts
  - 4. 120VAC power supply
  - 5. System shall also include remote sensor at the tank with volume readout
- B. The system shall be a LevelCon Model#: STM94442A, or equivalent.

### 2.3 LP FUEL PIPING

- A. All LP fuel piping components shall be specifically manufactured for use in LP fuel applications.
- B. Below grade fuel piping shall be direct buried polyethylene tubing or copper tubing encased with a carrier conduit of the size indicated in the plans. Below grade tubing shall include tracer wire.
- C. Provide anodeless meter risers, for polyethylene tubing, at each end where LP fuel piping stubs up to generator and LP fuel tank. Anodeless meter risers shall include epoxy coated steel casing and be rated for 125 psig.
- D. Above grade hard piping at generator and LP tank shall be steel gas rated piping which is primed and painted for outdoor environments.
- E. Above grade piping at LP fuel tank from LP tank to anodeless meter riser shall be copper tubing or flexible LP fuel gas tubing rated for outdoor environments.

## 2.4 LP FUEL PRESSURE REGULATORS

- A. Cast iron body, aluminum spring and diaphragm, Nitrile diaphragm, threaded ends, 150psi W.O.G., -20°F to 150°F.
- B. Regulators shall be specifically manufactured for use in LP fuel applications. Size regulators as appropriate for piping sizes and anticipated pressure drops as noted on the plans.

## 2.5 SHUT-OFF VALVES

- A. Two (2) inch or smaller: Ball valve, bronze body, threaded ends, stainless steel or chrome plated ball, full or conventional port, Teflon seat, blowout-proof system, two-piece construction, suitable for 150psig working pressure, U.L. listed for use as LP gas shut-off.

# PART 3 EXECUTION

## 3.1 GENERAL

- A. Coordinate LP fuel piping size and pressure requirements with generator supplier. Notify A/E if larger piping is required by the generator system prior to installation.

## 3.2 LP FUEL TANK

- A. Confirm concrete foundation is sufficiently sized to accommodate the supplied LP tank.
- B. Install concrete foundation slab per the plans and specifications.
- C. Mount and secure tank on slab concrete slab.
- D. Connect tank leg(s) to grounding system in accordance with the plans.
- E. Install LP gas monitor system per these specifications and manufacturer's instructions.
- F. Purge and fill tank to 80% of capacity with LP fuel. Fuel used during project construction is responsibility of the Owner.

## 3.3 REMOTE LP FUEL LEVEL MONITOR SYSTEM

- A. Trench and install conduit between LP tank and equipment building for hard wire leads as detailed in the plans. Install tracer wire. Support conduit above grade at LP tank.
- B. Install remote LP gas monitor system per manufacturer's instructions.
- C. Mount remote monitor unit within the equipment building on the telco board at the location as indicated in the plans.

- D. Seal conduit containing hard wire leads between LP tank and equipment building at both ends.
- E. Install alarm wiring to R66 Block. Alarm shall signal low fuel condition in the LP tank.

### 3.4 LP FUEL PIPING

- A. Trench and install LP fuel piping between LP tank and generator as detailed in the plans and specifications.
- B. Install AGA approved ball shut-off valve at the generator.
- C. Install LP fuel pressure regulators per manufacturers requirements at the locations noted in the plans.
- D. Provide fuel line support as noted in the plans.
- E. Provide sediment trap/dirt leg in hard piping at generator.
- F. Install flexible LP fuel gas tubing between hard piping and generator for vibration isolation.
- G. Air test fuel piping to insure no leaks exist prior to burying piping. Air test shall be at 100 psig for 24 hours. Repair as necessary. Document test results and provide to A/E.

### 3.5 TESTING/CERTIFICATION

- A. Test and certify LP gas system has been installed in accordance with applicable Federal, State and local Codes.
- B. Provide Certificate of Installation for installed system.

END OF SECTION

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## SECTION 33 79 00

### GROUNDING AND LIGHTNING PROTECTION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Communication tower grounding and lightning protection.
  - 2. Site grounding.
  - 3. Coax and waveguide grounding.
  - 4. Equipment shelter grounding.
- B. Related Sections:
  - 1. Section 31 23 16.13 - Trenching
  - 2. Section 33 82 00 – Coax and Waveguides

##### 1.2 REFERENCES

- A. NFPA 70, National Electric Code
- B. NFPA 780, Standard for the Installation of Lightning Protection Systems.
- C. UL 96A, Installation Requirements for Lightning Protection Systems.
- D. Motorola R56 Standard – Standards and Guidelines for Communication Sites
- E. Harris Site Grounding and Lightning Protection Guidelines (Installation Manual AE/LZT 123 4618/1 Rev. F, June 2017)
- F. IEEE Std. 1692-2011, Guide for the Protection of Communication Installations from Lightning Effects
- G. IEEE Std. 1100, IEEE Recommended Practice for Powering and Grounding Electronic Equipment.

##### 1.3 DESIGN INTENT AND MINIMUM REQUIREMENTS

- A. All grounding and lightning protection systems installed shall meet or exceed the requirements of the current Motorola R56 Standards. In cases where these plans and specifications exceed the requirements of the R56 standard, these plans and specifications shall be followed. In cases where these plans and specifications are in conflict with the R56 standard, contact Engineer for desired resolution.

##### 1.4 PERFORMANCE REQUIREMENTS

- A. Overall site and tower grounding system shall have a 3 ohm maximum resistance.

- B. Testing of ground system shall be witnessed by the Engineer's delegated field representative, upon request.

#### 1.5 EQUIPMENT AND MATERIALS FURNISHED BY OTHERS

- A. None.

#### 1.6 WORK BY OTHERS

- A. None.

#### 1.7 SUBMITTALS

- A. Submit manufacturer's cut sheets for all grounding and lightning protection system materials to be used on the project to the Engineer for approval prior to installation.
- B. Items requiring submittal include:
  - 1. Grounding conductors
  - 2. Air Terminals
  - 3. Ground rods
  - 4. Chemical ground rods
  - 5. Ground bars
- C. Test reports of ground system performance shall be included in final closeout submittals.

#### 1.8 RECORD DRAWINGS

- A. Accurately record installed locations of all below grade grounding electrodes and other grounding devices.
- B. Document locations in record drawings provided in final closeout submittals.
- C. Contractor to take digital photos of all installed below grade connections. Provide photos with record drawings.

### PART 2 PRODUCTS

#### 2.1 GROUNDING CONDUCTORS

- A. All ground system conductors shall be stranded or solid, tinned, copper conductors of the size and type noted on the plans. Aluminum conductors are not permitted.

#### 2.2 AIR TERMINALS

- A. Air terminals shall be constructed of copper clad steel.
- B. Air terminal(s) (lightning rod) shall extend a minimum of two feet above the highest appurtenance on the tower.

- C. Air terminals may be mounted on mast pipes to reach required height.
- D. Air terminals shall be directly connected to mast pipes or bonded to tower steel with a #2 stranded insulated copper conductor using UL approved mechanical connectors.
- E. Mast pipes (when used) shall be directly connected to tower steel or bonded to tower steel with a #2 stranded insulated copper conductor using UL approved mechanical connectors.

## 2.3 GROUND RODS

- A. 5/8-inch or 3/4-inch dia. x 10 foot copper clad steel rods unless otherwise noted. Refer to drawings for requirements.
- B. Rods shall be driven to depth noted in the drawings.
- C. Connect each ground rod to the below grade ground system using #2 AWG solid tinned copper ground conductors. Utilize exothermic connections between ground rod and conductor.
- D. Provide the number of rods and space as indicated on the drawings, generally no less than (6) feet and no greater than (20) twenty feet on center along path of ground ring.

## 2.4 CHEMICAL ENHANCED GROUND RODS

- A. Chemical enhanced ground rod as manufactured by Harger, or equivalent, composed of a copper tube that contains specialized hygroscopic electrolytic salts that help lower soil resistivity.
- B. Chemical enhanced ground rods shall be UL Listed and designed to last in excess of 35 years.
- C. Chemical enhanced ground rods shall be of the length and orientation noted in the plans and be provided with test well cover and #2 solid tinned conductor for connection to site grounding system.
- D. Install chemical enhanced ground rod per manufacturer's recommendations with 4-inch minimum cover of ultra-low resistance carbon based (Ultra-fill) material on all sides

## 2.5 GROUND BARS

- A. ANTENNA GROUND BARS
  - 1. Tinned Copper bus bars shall sized appropriately to accommodate the number of connecting lines. Minimum copper bar size shall be 1/4" x 4" x 6" providing (9) ten (2) two hole grounding lugs, (Site Pro Part No. MG40609 or equivalent).
  - 2. Provide (2) two #2 AWG stranded insulated ground leads which connect the ground bar to tower steel in two places using UL listed mechanical connectors as detailed in the plans.

B. LOWER TOWER GROUND BAR

1. Tinned Copper bus bar shall sized appropriately to accommodate the number of connecting lines. Minimum copper bar size shall be ¼" x 4" x 24" providing (44) forty four (2) two hole grounding lugs, (Site Pro Part No. MG42488K or equivalent).
2. Provide non-conductive insulators between bus bar and tower structure.
3. Provide (2) two #2 AWG bare solid tinned ground leads, exothermically connected to ground bar, which connects ground bar to tower ground system in two places as detailed in the plans.

C. INTERIOR/EXTERIOR SHELTER GROUND BARS

1. Copper bus bar shall sized appropriately to accommodate the number of connecting lines. Minimum copper bar size shall be ¼" x 4" x 24" providing (44) forty four (2) two hole grounding lugs, (Site Pro Part No. MG42488K or equivalent).
2. Exterior ground bars shall be tinned.
3. Provide non-conductive insulators between bus bar and tower/building structure.
4. Provide (2) two #2 AWG bare solid tinned ground leads, exothermically connected to ground bar, which connects ground bar to site ground system in two places as detailed in the plans.

2.6 GROUNDING CONNECTORS

A. MECHANICAL

1. Mechanical connector bodies shall be manufactured from high strength, high conductivity cast copper alloy material. Bolts, nuts, washers and lockwashers shall be made of Silicon Bronze and supplied as a part of the connector body and shall be of the two bolt type.
2. The connectors shall meet or exceed UL 467 and be clearly marked with the catalog number, conductor size and manufacturer.

B. COMPRESSION

1. Compression connectors shall be manufactured from pure wrought copper. The conductivity of this material shall be no less than 99% by IACS standards.
2. The connectors shall meet or exceed the performance requirements of IEEE 837, latest revision.
3. The installation of the connectors shall be made with a compression, tool and die system, as recommended by the manufacturer of the connectors.
4. The connectors shall be clearly marked with the manufacturer, catalog number, conductor size and the required compression tool settings.
5. Each connector shall be factory filled with an oxide-inhibiting compound.

C. EXOTHERMIC

1. Exothermic welding system connection specifically used for in making electrical connections of copper to copper, copper to steel or copper to cast iron or copper to brass/bronze for grounding and cathodic applications as manufactured by Cadweld, or equivalent.



2. Exothermic welding system shall meet the applicable requirements of IEEE Std. 80 and IEEE Std. 837. Independent test data showing conformance to shall be readily available
  3. Electronic igniter must meet applicable requirements for electromagnetic compatibility. An independent test report including results of radiated emission, electrostatic discharge and radiated immunity shall be readily available.
  4. Manufacturer shall be ISO9001:2000 certified.
- D. GROUNDING PLATES
1. 18"x18" square x 0.032-inch thick solid copper grounding plates.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Call Local Utility Line Information service at not less than three working days before performing Work.
  1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Coordinate fence ground lead locations with fencing contractor.
- C. Verify that final backfill and compaction has been completed before driving rod electrodes

### 3.2 GENERAL

- A. Install Products in accordance with the plans, details and manufacturer's instructions.
- B. Mechanical connections shall be accessible for inspection and checking. No insulation shall be installed over mechanical ground connections.
- C. Ground connection surfaces shall be properly cleaned and prepared to provide metal to metal contact. All connections shall be made so that it is impossible to move.

### 3.3 TOWER & EQUIPMENT BUILDING FOUNDATION REINFORCING STEEL GROUNDING

- A. Connect tower and equipment building foundations' reinforcing steel to tower ground ring with (1) one or more #2 solid bare tinned copper conductor(s) as detailed in the plans.

### 3.4 BELOW GRADE GROUND SYSTEM

- A. Excavate ground trenches at the locations and required depths as noted in the plans.
- B. Install ground rods, ground plates, conductors and other below grade devices as detailed in the plans.

- C. Connect all devices using exothermic type connections to below grade ground system.
- D. Notify Engineer for inspection of ground system and connections prior to backfilling. Provide 72 hour minimum advanced notice.
- E. Record locations of all below grade connections.
- F. Record digital photos of all completed below grade connections.
- G. Backfill and compact trenches per the plans and specifications.
- H. Install inspection/test wells per the plans and specifications.
- I. Grounding plates shall be utilized in lieu of ground rods at locations where ground rods can not be installed (i.e. over tower foundation or bedrock). Install ground plates at standard ground trench depth.

### 3.5 GROUND BARS

- A. Install ground bars at the locations shown and as detailed in the plans.

### 3.6 GROUND KITS

- A. Install ground kits on all coax and waveguide at the locations shown in the plans.
- B. Ground kits shall be installed on each coax/waveguide a minimum of (3) three times (antenna level, base of the tower and building coax port entry). Additional ground kit shall be installed such that a ground kit is installed every 75 feet of transmission line length.

### 3.7 INTERIOR SHELTER GROUNDING

- A. Install Surge Protection Devices at the locations shown on plans.
- B. Surge protection devices and other metallic items shall be individually bonded to the halo using No.6 AWG copper conductors. Provide jumpers between conduit and cable tray splices. All bond wires shall be oriented with direction flowing toward the MGB.

### 3.8 ABOVE GRADE GROUND SYSTEM

- A. Connect fence posts, gates, ice bridge posts, tower and ground bar leads to the below grade ground system as detailed in the plans.

### 3.9 QUALITY CONTROL

- A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

- B. Use suitable test instrument to measure resistance to ground of overall system. Perform testing in accordance with test instrument manufacturer's recommendations using the fall-of-potential method. Resistance shall meet or exceed a 3 ohm maximum resistance plateau. Provide written results of resistance measurements to the Engineer.

END OF SECTION

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