



**PROJECT MANUAL
FOR
COMMUNITY SOLAR GARDEN**



**WAVERLY MUNICIPAL
ELECTRIC UTILITY
WAVERLY, IOWA**

April 2018

DGR Project No. 419612

PROJECT MANUAL
FOR
COMMUNITY SOLAR GARDEN
WAVERLY MUNICIPAL ELECTRIC UTILITY
WAVERLY, IOWA

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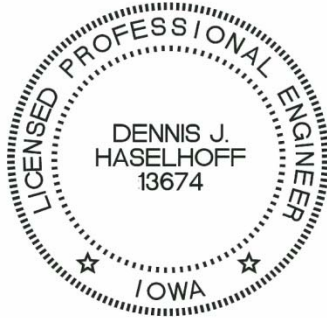
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PROJECT MANUAL
FOR
COMMUNITY SOLAR GARDEN
WAVERLY MUNICIPAL ELECTRIC UTILITY
WAVERLY, IOWA

	<p>This engineering document is a reproduction of a certified engineering document, the official copy which was certified by</p> <p style="text-align:center"><u>Dennis J. Haselhoff, P.E.</u> <u>4-2-18</u> (Date)</p> <p>The official copy of this engineering document is on file at the office of the Owner.</p> <p>Pages or sheets covered by this seal: <u>All pages except Technical Data Section and Appendix.</u></p>
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DGR Project No. 419612

DGR Engineering
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CATEGORY I

Bidding Information and Contract Forms

Notice to Bidders and Notice of Public Hearing

Instructions to Bidders

Standard Terms, Conditions, and Definitions

Bid Bond

Bid Form

Bidder Status Form

Agreement

Performance Bond

Payment Bond

Miscellaneous Forms:

Notice of Award

Notice to Proceed

Certificate of Substantial Completion

Work Change Directive

Change Order

Field Order

Waiver and Release of Lien

Certificate of Contractor and Indemnity Agreement

**Engineer's Statement of Final Completion and Owner's Acceptance of
Contract Construction**

Contractor's Receipt for Final Payment

Iowa Contractor's Statement

BIDDING INFORMATION AND CONTRACT FORMS

NOTICE TO BIDDERS AND NOTICE OF PUBLIC HEARING

Notice is hereby given that sealed bids will be received by the Director, Business Operations of the Waverly Municipal Electric Utility, Waverly, Iowa, at 1002 Adams Parkway, Waverly, IA 50677 before **1:00 PM, on May 1, 2018**, for the Community Solar Garden Project. Bids received after the deadline for submission of bids as stated herein shall not be considered and shall be returned to the late bidder unopened. At said time and place, sealed bids will be publicly opened, read and tabulated by the Director, Business Operations of the Waverly Municipal Electric Utility. Bids will be considered by the Board of Trustees of the Waverly Municipal Electric Utility at its meeting at 1:00 P.M. on the 8th day of May, 2018. The Board of Trustees may award a Contract at said meeting, or at such other time and place as shall then be announced.

Notice is hereby given that the Waverly Municipal Electric Utility will conduct a public hearing on the plans, specifications, form of contract and estimated total cost for the Community Solar Garden Project at its meeting at 1:00 P.M. on the 8th day of May, 2018, in said Board Room, Waverly Utilities, 1002 Adams Parkway, Waverly, Iowa, 50677.

The general nature of the work on which bids are requested is the furnishing and installation of photovoltaic panels, inverters, tilt racks, and associated hardware, located at 16th Avenue SW, Waverly, Iowa.

The above equipment shall be furnished in accordance with the specifications and proposed form of contract now on file in the office of the Waverly Municipal Electric Utility, Waverly, Iowa, by this reference made a part hereof, as though fully set out and incorporated herein.

Complete digital project bidding documents are available at www.questcdn.com. You may download the digital plan documents by inputting **Quest project #5678128** on the website's Project Search page. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information. An optional paper set of the proposal forms and specifications for individual use may be obtained from the office of the Engineer, DGR Engineering, 1302 South Union, P.O. Box 511, Rock Rapids, Iowa 51246, telephone 712-472-2531, Fax 712-472-2710, e-mail: dgr@dgr.com, no deposit required.

Each Bidder shall accompany its bid with bid security as defined in Iowa Code Section 26.8, as security that the successful Bidder will enter into a Contract for the work bid upon and will furnish after the award of Contract a corporate Surety Bond, in a form acceptable to the Waverly Municipal Electric Utility, for the faithful performance of the Contract, in an amount equal to one hundred percent (100%) of the amount of the Contract. The Bidder's security shall be an amount equal to ten percent (10%) of the amount of the Bid and shall be in the form of a cashier's check or a certified check drawn on an FDIC insured bank in Iowa or on an FDIC insured bank chartered under the laws of the United States; or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States; or a Bid Bond on the form provided in the Contract Documents with corporate Surety satisfactory to the Waverly Municipal Electric Utility. The bid shall contain no condition except as provided in the specifications.

Each successful Bidder will be required to furnish a corporate Surety Bond in an amount equal to one hundred percent (100%) of its Contract price. Said Bond shall be issued by a responsible Surety approved by the Waverly Municipal Electric Utility and shall guarantee the faithful performance of the Contract and the terms and conditions therein contained and shall guarantee the prompt payment of all material and labor, and protect and save harmless the Waverly Municipal Electric Utility from claims and damages of any kind caused by the operations of the Contract.

Should the successful Bidder fail or neglect to furnish a satisfactory surety bond, refuse to enter into contract on the basis of the bid, or fail to meet the requirements of this Notice and the specifications regulating the award, the bidder's security may be retained as liquidated damages.

Payment to the Bidder for said equipment will be made from cash on hand or such other funds that legally may be sued or obtained for such purposes. Payment will be paid by the Waverly Municipal Electric Utility to the Bidder in accordance with the following schedule:

Ninety-five percent (95%) within thirty (30) days after delivery receipt of the material and associated invoice; five percent (5%) thirty-one days after final completion, field testing, required test reports, record drawings, final documentation and certification by Engineer.

The Project shall be substantially completed on or before October 9, 2018, and completed and ready for final payment on or before November 1, 2018.

By virtue of statutory authority, a preference will be given to products and provisions grown, and coal produced within the State of Iowa.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Failure to submit a fully completed Bidder Status Form with the Proposal may result in the Proposal being deemed nonresponsive and rejected.

Waverly Municipal Electric Utility reserves the right to defer acceptance of any bid for a period not to exceed ninety (90) days after the date bids are received and no bid may be withdrawn during this period. The Utility also reserves the right to waive irregularities, reject any or all bids, and enter into such contract as it shall be deemed to be in the best interest of the Utility.

Dated this 2nd day of April 2018.

WAVERLY MUNICIPAL ELECTRIC UTILITY
WAVERLY, IOWA

By /s/ Curt Atkins
Director, Business Operations

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:
- A. *Issuing Office* - The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
 - B. *Successful Bidder* - The responsible Bidder submitting the lowest responsive, responsible Bid to whom OWNER (on the basis of OWNER's evaluations as hereinafter provided) makes an award.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Notice to Bidders and Notice of Public Hearing may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

- 3.01 Owner may request information from the lowest responsive Bidder to determine the Bidder's responsibility relating to the Bidder's experience. A Bidder shall submit such requested information to Owner within five days of Owner's request. A Bidder's failure to submit the requested information within the times indicated may disqualify the Bidder from receiving an award of the Contract.

ARTICLE 4 - SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

- 4.01 *Site and Other Areas*
- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the

Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

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

B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others. Information or data regarding Underground Facilities may be missing or incomplete. Location and avoidance of underground facilities is a part of the Work as required by the Supplementary Conditions.

- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

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

ARTICLE 5 - BIDDER'S REPRESENTATIONS

- 5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the

Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and
- J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 - NOT USED

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less

than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents.

ARTICLE 8 - BID SECURITY

8.01 Each Bid must be accompanied by Bid security made payable to Owner in an amount of ten percent (10%) of the Bidder's maximum Bid price if in the form of a certified or bank check or a Bid Bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or the expiration of the Bid time for acceptance as specified on the Bid Form, whereupon Bid security furnished by such Bidders will be released on request.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be released on request within seven days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages are set forth in Article 4 of the Agreement.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by Engineer as an "or-equal" or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date

for receipt of Bids. Each such request shall comply with the requirements of Paragraphs 7.04 and 7.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the lowest responsive Bidder shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request the lowest responsive Bidder to submit a substitute, without an increase in the Bid.
- 12.02 If the lowest responsive Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 7.06 of the General Conditions.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."

C. Where the Bid Form includes more than one item, the Bidder may attach a substitute Proposal Form printed by a computer in lieu of completing the printed Proposal Form. If a substitute Proposal Form is used, it shall be attached to the back side of the printed Proposal Form. Such computer printed substitute Proposal Form shall include the following at the top of each page:

1. Project Title
2. Letting Date
3. Bidder's Name

13.02 The substitute computer printed Proposal Form shall have column headings that include the Item Number, Number of Units, Item Description, Unit Bid Price, Amount Bid for each item, Total Gross Sum Bid below the last bid item and bidder's name, signature in ink and title at the end of the Proposal Form. The signature on the substitute computer printed Proposal Form shall be the same as that on the bound Bid Form. The total gross sum bid shall also be written in ink in the space provided in the bound Bid Form. In case of a discrepancy between the item number, item description, and/or quantity shown in the bound Bid Form and those shown in the substitute computer printed Proposal Form, the bid item description and/or quantity shown in the bound Bid Form shall govern. The unit bid price shown on the substitute computer printed Proposal Form shall govern whether or not the amount bid shown is correct. The substitute Proposal Form page size and size of printed characters shall be approximately the same as the bound Bid Form. Solid lines for separating may be arranged either vertically or horizontally on the substitute Proposal Form. Pages must be numbered by page number of the total pages (Page 1 of 4). Item numbers must follow the Item numbers on the Bid Form. Any abnormalities which are not waived by the Owner as a technicality will result in rejection of the bid.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. If required by State where work is to be performed, the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

- 13.08 All names shall be typed or printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number, if any, for the state of the Project, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

The Bid shall be furnished on the basis (lump sum or unit price) as indicated on the Bid Form.

14.01 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

ARTICLE 15 - SUBMITTAL OF BID

- 15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy each of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with all attachments listed in Article 7 of the Bid.
- 15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Notice to Bidders and Notice of Public Hearing and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a

separate package plainly marked on the outside with the notation "BID ENCLOSED." Whether using the mail, personal delivery, or some other delivery system, the Bidder is totally responsible for the mail or other delivery system delivering the Bid at the place and prior to that time indicated in the Advertisement for Bid. Note that the location for the Bid opening may be a rural location not reliably covered by the "delivery time guarantee" of various delivery services. A mailed Bid shall be addressed to the Owner at the address specified by the Notice to Bidders and Notice of Public Hearing.

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

15.04 **Two (2) copies of the Bid Form shall be submitted.**

15.05 Address for submission of bids is as follows:

Waverly Municipal Electric Utility
Attn: Curt Atkins
1002 Adams Parkway
Waverly, IA 50677

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work. This provision to withdraw a Bid without forfeiting the Bid Security does not apply to Bidder's errors in judgment in preparing the Bid

ARTICLE 17 - OPENING OF BIDS

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

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 - EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 If the Contract is to be awarded, Owner will award the Contract to the lowest responsive, responsible Bidder whose Bid is in the best interests of the Owner.

19.05 The Owner will, in evaluating Bids, consider the requirements of the resident bidder preference law, and allow such preferences to resident bidders as are required to be allowed under State Law. Bidder shall, when submitting a Bid, furnish an executed Bidder Status Form for the Owner to use when applying the preference law. Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

ARTICLE 20 - BONDS AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 - SIGNING OF AGREEMENT

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

ARTICLE 22 - RETAINAGE

22.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name— Include Location*):

BOND

Bond Number:

Date:

Penal sum

\$

(Words)

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature

By:

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Signature

Attest:

Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

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

BID FORM

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Waverly Municipal Electric Utility
Waverly, IA 50677

1.02 This Bid is submitted by:

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

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied, if any are available, all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

BID FORM
COMMUNITY SOLAR GARDEN
WAVERLY UTILITIES
WAVERLY, IOWA

BASE BID - 500 kW AC PV SYSTEM

	Description	Unit Price				Extended Price
		Est # of Units	Labor	Materials	Labor & Materials	
M1	Top soil salvage/spreading/grading (cu. Yd.)	500				
M2	12" subgrade preparation (sq. Yd.)	3000				
M3	6" layer crushed limestone rock surfacing (ton)	1100				
M4	Silt Fence/Ditch Checks/Wattles (ln. ft.)	500				
M5	Seeding, Fertilizing and Hydro-Mulching (acre)	0.5				
N1	Fence and gates (as req'd)	1				
O1	Grounding system (as req'd)	1				
P1	Interconnection wiring, AC panels, conductor/conduit (as req'd)	1				
PV	PV Module System, 500 kW AC (as req'd)	1				
MOB	Mobilization, (as Req'd)	1				

TOTAL BASE BID _____

ALTERNATE BID - 700 kW AC PV SYSTEM

	Description	Unit Price				Extended Price
		Est # of Units	Labor	Materials	Labor & Materials	
PV-ALT	PV Module System, 700 kW AC (as req'd)	1				

TOTAL ALT BID _____

ARTICLE 6 – TIME OF COMPLETION

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

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of _____;
 - B. List of proposed subcontractors
 - C. List of proposed suppliers
 - D. List of project references

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By: _____
[Signature]

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
[Signature]

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

Bidder's License No.: _____
(where applicable)

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

- Yes No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).
- Yes No My company has an office to transact business in Iowa.
- Yes No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
- Yes No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.
- Yes No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

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

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

To be completed by resident bidders

Part B

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

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

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

Dates: ____/____/____ to ____/____/____ Address: _____
You may attach additional sheet(s) if needed. City, State, Zip: _____

To be completed by non-resident bidders

Part C

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

2. Does your company's home state or foreign country offer preferences to bidders who are residents? Yes No
3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

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

Firm Name: _____

Signature: _____ Date: _____

**You must submit the completed form to the governmental body requesting bids
per 875 Iowa Administrative Code Chapter 156.
This form has been approved by the Iowa Labor Commissioner.**

309-6001 02-14

Worksheet: Authorization to Transact Business

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

- Yes No My business is currently registered as a contractor with the Iowa Division of Labor.
- Yes No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- Yes No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- Yes No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- Yes No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- Yes No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- Yes No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- Yes No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- Yes No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

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

THIS AGREEMENT is by and between Waverly Municipal Electric Utility
("Owner") and _____
("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Photovoltaic Community Solar Garden.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by DGR Engineering.

3.02 The Owner has retained DGR Engineering ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

4.02 *Contract Times: Dates*

A. The Work will be substantially completed on or before October 9, 2018, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before November 1, 2018.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph

4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner \$500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner \$500 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

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

- A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.
- B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in the Contractor's Bid.

As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 13.03 of the General Conditions. Unit prices have been computed as provided in Paragraph 13.03 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

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

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 1st day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract
 - a. 95 percent of Work completed (with the balance being retainage); and
 - b. 5 percent (with the balance being retainage) of cost of materials and equipment not incorporated in the Work (but delivered, suitably stored, and accompanied by documentation satisfactory to Owner.
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

6.03 Final Payment

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

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest at the rate established by Sections 573.12 and 74A.2 of the Iowa Code.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

- B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings. If no such reports have been made available to Contractor, Contractor agrees that none are required from Owner.
- E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.
- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
1. This Agreement (pages A-1 to A-8, inclusive).
 2. Performance bond (pages 1 to 2, inclusive).
 3. Payment bond (pages 1 to 2, inclusive).
 4. General Conditions (pages 1 to 65, inclusive).
 5. Supplementary Conditions (pages SC-1 to SC-4, inclusive).
 6. Specifications as listed in the table of contents of the Project Manual.
 7. Drawings (not attached but incorporated by reference) consisting of sheets with each sheet bearing the following general title: [or] the Drawings listed on the attached sheet index.
 8. Addenda (numbers to , inclusive).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages to , inclusive).
 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 9.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

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

10.02 *Assignment of Contract*

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

10.03 *Successors and Assigns*

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

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-

competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. None.

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

This Agreement will be effective on (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

Waverly Municipal Electric Utility

By: _____

By: _____

Title: _____

Title: _____

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

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

1002 Adams Parkway

Waverly, IA 50677

License No.: _____

(where applicable)

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location):*

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: None See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:
 - 3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - 3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
 - 5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
 - 5.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
 - 5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
 - 5.4.1. After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - 5.4.2. Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
 - 7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 7.2. additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
 - 7.3. liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
14. Definitions
 - 14.1. Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
 - 14.2. Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
 - 14.3. Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
 - 14.4. Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 14.5. Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.
15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description (*name and location*):

BOND

Bond Number:

Date (*not earlier than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: None See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Contractor's Name and Corporate Seal *(seal)*

By: _____
Signature

Print Name

Title

Attest: _____
Signature

Title

SURETY

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature (*attach power of attorney*)

Print Name

Title

Attest: _____
Signature

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1. Claimants who do not have a direct contract with the Contractor,
 - 5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2. Pay or arrange for payment of any undisputed amounts.
 - 7.3. The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.
16. **Definitions**
 - 16.1. **Claim:** A written statement by the Claimant including at a minimum:
 1. The name of the Claimant;
 2. The name of the person for whom the labor was done, or materials or equipment furnished;
 3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
 4. A brief description of the labor, materials, or equipment furnished;
 5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
 6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
 7. The total amount of previous payments received by the Claimant; and
 8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.
 - 16.2. **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
 - 16.3. **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.
 - 16.4. **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
 - 16.5. **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.
17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
18. Modifications to this Bond are as follows:

MISCELLANEOUS FORMS

NOTICE OF AWARD

Date of Issuance: _____

Owner: _____ Owner's Contract No.: _____

Engineer: DGR Engineering Engineer's Project No.: _____

Project: _____ Contract Name: _____

Bidder: _____

Bidder's Address: _____

TO BIDDER:

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

_____ .
[describe Work, alternates, or sections of Work awarded]

The Contract Price of the awarded Contract is: \$ _____ *[note if subject to unit prices, or cost-plus]*

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

a set of the Drawings will be delivered separately from the other Contract Documents.

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

1. Deliver to Owner [_____] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security *[e.g., performance and payment bonds]* and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): _____

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

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

Owner: _____

Authorized Signature

By: _____

Title: _____

Copy: DGR Engineering

NOTICE TO PROCEED

Owner: _____ Owner's Contract No.: _____
Contractor: _____ Contractor's Project No.: _____
Engineer: DGR Engineering Engineer's Project No.: _____
Project: _____ Contract Name: _____
Effective Date of Contract: _____

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [_____, 20__]. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is _____, and the date of readiness for final payment is _____] **or** [the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner:

Authorized Signature

By:

Title:

Date Issued:

Copy: DGR Engineering

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:
Contractor:
Engineer: DGR Engineering
Project:

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

This [preliminary] [final] Certificate of Substantial Completion applies to:

- All Work The following specified portions of the Work:

Date of Substantial Completion

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

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

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: None
 As follows

Amendments to Contractor's responsibilities: None
 As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

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

EXECUTED BY ENGINEER:	RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Work Change Directive No.

Date of Issuance: _____ Effective Date: _____
Owner: _____ Owner's Contract No.: _____
Contractor: _____ Contractor's Project _____
Engineer: DGR Engineering Engineer's Project No.: _____
Project: _____ Contract Name: _____

Contractor is directed to proceed promptly with the following change(s):
Description: _____

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

- Non-agreement on pricing of proposed change.
 Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price \$ _____ [increase] [decrease].
Contract Time _____ days [increase] [decrease].

Basis of estimated change in Contract Price:

- Lump Sum Unit Price
 Cost of the Work Other

RECOMMENDED:	AUTHORIZED BY:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____
Title _____

Change Order No. _____

Date of Issuance:
 Owner:
 Contractor:
 Engineer: DGR Engineering
 Project:

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

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ <div style="text-align: right;">days or dates</div>
[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ___ to No. ___: Substantial Completion: _____ Ready for Final Payment: _____ <div style="text-align: right;">days</div>
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ <div style="text-align: right;">days or dates</div>
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ <div style="text-align: right;">days or dates</div>
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ <div style="text-align: right;">days or dates</div>

<p style="text-align: center;">RECOMMENDED:</p> <p>By: _____ Engineer (if required)</p> <p>Title: _____</p> <p>Date: _____</p>	<p style="text-align: center;">ACCEPTED:</p> <p>By: _____ Owner (Authorized)</p> <p>Title: _____</p> <p>Date: _____</p>	<p style="text-align: center;">ACCEPTED:</p> <p>By: _____ Contractor (Authorized)</p> <p>Title: _____</p> <p>Date: _____</p>
--	---	--

Approved by Funding Agency (if applicable)

By: _____ Date: _____
 Title: _____

Field Order No. _____

Date of Issuance: _____ Effective Date: _____
Owner: _____ Owner's Contract No.: _____
Contractor: _____ Contractor's Project No.: _____
Engineer: DGR Engineering Engineer's Project No.: _____
Project: _____ Contract Name: _____

Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: _____
Specification(s) Drawing(s) / Detail(s)

Description:

Attachments:

ISSUED:	RECEIVED:
By: _____ Engineer (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____
Date: _____	Date: _____

Copy to: Owner

WAIVER AND RELEASE OF LIEN

WHEREAS, the undersigned, _____
Name of Manufacturer, Materialman or Subcontractor

has furnished to _____ the following:
Name of Contractor

_____ for use in the construction
of a _____
Kind of Material and Services Furnished

project belonging to _____,
and _____
Name of Owner

designated as, _____
Name of Project

NOW, THEREFORE, the undersigned, _____
Name of Manufacturer, Materialman or Subcontractor

for and in consideration of \$_____, and other good and valuable consideration, the receipt whereof is hereby acknowledged, do(es) hereby waive and release any and all liens, or right to or claim of lien, on the above described project and premises, under any law, common or statutory, on account of labor or materials, or both, heretofore or hereafter furnished by the undersigned to or for the account of said _____ for said project.
Name of Contractor

Given under my (our) hand(s) and seal(s) this _____ day of _____, 20

Name of Manufacturer, Materialman or Subcontractor

By _____

President, Vice-President, Partner or Owner, or, if signed by other than one of foregoing, accompanied by Power of Attorney signed by one of the foregoing in favor of the signer. (Use designation applicable)

CERTIFICATE OF CONTRACTOR AND INDEMNITY AGREEMENT

_____, certifies that he is the * _____
Title or Designation

of _____, the Contractor,
Name of Contractor

in a contract No. _____ dated _____, entered into between the Contractor and

Name of Owner

the Owner, for the construction of _____

Name of Project

and that he is authorized to and does make this Certificate and Indemnity Agreement on behalf of the Contractor in order to induce the Owner to make payment to the Contractor, in accordance with the provisions of the Contract. Undersigned further certifies that:

1. The Project has been completed in accordance with provisions of the Construction Contract; provided however, that acceptance by the Owner shall not be deemed to relieve the Contractor of his obligations contained in the Construction Contract with respect to defective workmanship and materials discovered within 2 year(s) after the date of completion.

2. All persons who have furnished labor in connection with the Project have been paid in full at hourly wage rates not less than those, if any, set forth in the Construction Contract; that all manufacturers, materialmen and subcontractors which furnished any materials or services, or both, for the Project have been paid in full; that no lien has been filed against the Project and no person has any right to claim any lien against the Project.

3. That the Contractor has delivered to the Owner duplicate releases of liens executed by all manufacturers, materialmen and subcontractors that furnished materials or services for the project as follows:

Name	Kind of Material and Services
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

If the Owner pays the Contractor the total amount due under the Contract, which the Contractor agrees is \$_____, including \$_____ for ** state sales and use taxes paid by the Contractor, the Contractor will indemnify and hold harmless and does hereby undertake and agree to indemnify and hold harmless the Owner, including the defense of any suit, from any claim, demand or lien arising out of the acts of the Contractor in the performance of the Contract for which the Contractor is liable and which may have been or may be filed against the Owner.

Signature

- * President, Vice-President, Partner or Owner, or, if undersigned is other than one of the foregoing, Power of Attorney signed by one of the foregoing in favor of the undersigned should be attached. Indicate applicable designation.
- ** In addition, Contractor shall submit a detailed statement of sales and use taxes paid in accordance with requirements of statute in state having jurisdiction.

**ENGINEER'S STATEMENT OF FINAL COMPLETION
AND
OWNER'S ACCEPTANCE OF CONTRACT CONSTRUCTION**

TO: _____

PROJECT DESIGNATION

I, the undersigned Engineer of the above designated project, do hereby state that:

1. The construction provided for pursuant to Construction Contract No. _____, dated _____, including all approved amendments and change orders, (hereinafter called the "Project")

Between _____ ("Owner") and _____ ("Contractor") has been completed as of _____ and to the best of my knowledge, information and belief, based on observations made during the period of construction, is in substantial compliance with the provisions of the Construction Contract, including all plans, specifications and drawings, and modifications thereof.

To the best of my knowledge, information and belief,

2. Defects in workmanship and materials reported during the period of construction of the Project have been corrected.

3. The total cost of the project as completed is _____ dollars (\$_____).

Accepted:

DGR ENGINEERING

Owner

By _____

Title _____

By _____

Date _____

Date _____

Attest _____

CONTRACTOR'S RECEIPT FOR FINAL PAYMENT

Name of Project _____

Date _____

Previous Contract Payment

Final Contract Payment

Total Contract Payments

\$ _____

\$ _____

\$ _____

The undersigned acknowledges receipt of the final contract payment shown above as satisfaction in full of all claims of the undersigned under the Construction Contract between the undersigned and

Name of Owner

dated _____ as amended, and as complete performance by the Owner of all obligations to be performed by him pursuant thereto. The total amount received under this contract is shown above.

Name of Contractor _____

By _____



Iowa Department of Revenue

www.iowa.gov/tax

Iowa Contractor's Statement

Contractor's Name	
Address	
City, State, ZIP	
Iowa Sales or Use Tax Permit No.	FEIN
1. Project Description:	
2. Is your contract written? If so, date signed:	

Name of government unit, private nonprofit education institution, nonprofit museum, business in economic development area, rural water district, or Habitat for Humanity
Address
City, State, ZIP
If contract is not directly with above name, who is your contract directly with?

INCLUDE ONLY BUILDING MATERIALS THAT BECOME PART OF REAL PROPERTY. See instructions on reverse side.

A. Name, City, and State of Material Supplier	B. Type of Building Material	C. Purchase Price	D. Amount of Iowa sales/use tax	E. Did supplier collect IA sales/use tax? (yes/no) If no, who paid the tax/when?	F. Amount of Iowa local option tax	G. County # where Iowa local option was paid
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						

TOTALS

--	--	--

Subscribed and sworn to by _____,
before me this ____ day of _____, 20 ____.
Notary Public in and for _____ County of Iowa.

I, "Contractor," _____ state that this statement is made pursuant to section 423.4, Code of Iowa, that all statements made herein are true and accurate to the best of my knowledge and belief; that all of the tangible personal property described herein became an integral part of the project herein described, and sales or use tax was paid to Iowa as shown.
Name: _____ Title: _____

35-002a (07/01/13)

Instructions for Contractor's Statement

This Contractor's Statement must be prepared and sworn to by each general contractor, special contractor, or subcontractor who fulfills a contract or subcontract pertaining to a project that is sponsored by agencies or instrumentalities of the federal, state, county, municipal governments, private nonprofit educational institutions, nonprofit museums, businesses in economic development areas, rural water districts, or Habitat for Humanity. Upon completion of the contract, this form must be presented to that sponsor so they may file for a tax refund in accordance with section 423.4, Iowa Code, as amended.

Additional information may be required by the Department of Revenue.

Contractor:

Forward this statement to the sponsor (governmental unit, private nonprofit educational institution, nonprofit museum, business in economic development area, rural water district, or Habitat for Humanity). Do NOT send it to the Iowa Department of Revenue.

Sponsor:

This statement must be attached to the Construction Contract Claim for Refund (35-003). Both forms must be filed before the Department can process your claim. **File using this form.** Substitutes or photocopies will not be accepted. The claim for refund must be filed within one year of the final settlement date of the contract.

Form Instructions

Columns A through E must be completed. If local option sales tax was paid on the purchase price, complete columns A through G.

A. Name, City, and State of Material Supplier

"Out of stock" or "inventory" should be entered in column A for materials that the contractor has manufactured or has in inventory, making the contractor the material supplier.

B. Type of Building Material

Be specific. Only the items that become an integral part of the structure should be listed. The following is a nonexclusive list of items that should NOT be included on this form: Equipment rental, machinery, equipment, tools, utilities, warning lights, barricades, portable toilets, forms, stakes, scaffolding, dynamite, lodging, fuel, and labor.

C. Purchase Price

Cost of material shown in column B. Do NOT include transportation charges, delivery charges, or hauling charges. Do NOT include sales/use or local option sales tax in this column.

D. Amount of Iowa Sales / Use Tax

Compute on the purchase price recorded in column C. Do NOT include local option sales tax in column D.

E. Did Supplier Collect Iowa Sales / Use Tax?

If the answer is "no," include who paid the tax, the date the tax was paid,

and the Iowa permit number under which it was remitted. If no Iowa tax was paid, please explain why not and/or to which state the tax was paid.

F. Amount of Iowa Local Option Tax

In addition to the state sales and use tax in column D, there may be purchases that were subject to local option tax. Enter the amount of local option tax in column F. Do not include local option tax in column D entry.

G. County Number

Number of the county for which local option sales tax was paid. See the list below.

IOWA COUNTIES AND COUNTY NUMBERS

01-ADAIR	21-CLAY	41-HANCOCK	61-MADISON	81-SAC
02-ADAMS	22-CLAYTON	42-HARDIN	62-MAHASKA	82-SCOTT
03-ALLAMAKEE	23-CLINTON	43-HARRISON	63-MARION	83-SHELBY
04-APPANOOSE	24-CRAWFORD	44-HENRY	64-MARSHALL	84-SIOUX
05-AUDUBON	25-DALLAS	45-HOWARD	65-MILLS	85-STORY
06-BENTON	26-DAVIS	46-HUMBOLDT	66-MITCHELL	86-TAMA
07-BLACK HAWK	27-DECATUR	47-IDA	67-MONONA	87-TAYLOR
08-BOONE	28-DELAWARE	48-IOWA	68-MONROE	88-UNION
09-BREMER	29-DES MOINES	49-JACKSON	69-MONTGOMERY	89-VAN BUREN
10-BUCHANAN	30-DICKINSON	50-JASPER	70-MUSCATINE	90-WAPELLO
11-BUENA VISTA	31-DUBUQUE	51-JEFFERSON	71-O'BRIEN	91-WARREN
12-BUTLER	32-EMMET	52-JOHNSON	72-OSCEOLA	92-WASHINGTON
13-CALHOUN	33-FAYETTE	53-JONES	73-PAGE	93-WAYNE
14-CARROLL	34-FLOYD	54-KEOKUK	74-PALO ALTO	94-WEBSTER
15-CASS	35-FRANKLIN	55-KOSSUTH	75-PLYMOUTH	95-WINNEBAGO
16-CEDAR	36-FREMONT	56-LEE	76-POCAHONTAS	96-WINNESHIEK
17-CERRO GORDO	37-GREENE	57-LINN	77-POLK	97-WOODBURY
18-CHEROKEE	38-GRUNDY	58-LOUISA	78-POTTAWATTAMIE	98-WORTH
19-CHICKASAW	39-GUTHRIE	59-LUCAS	79-POWESHIEK	99-WRIGHT
20-CLARKE	40-HAMILTON	60-LYON	80-RINGGOLD	

35-002b (07/22/14)

CATEGORY II

General Conditions

- **General Conditions**
- **Supplementary Conditions**

GENERAL CONDITIONS

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment

into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

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

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

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

2.03 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Initial Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

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

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If

Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

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

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

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

4.02 *Starting the Work*

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

4.03 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

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

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable,

brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

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

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

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

- c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous

Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or

any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 - 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

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

7.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
 - B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
 - C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be

evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

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

7.09 *Taxes*

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

7.10 *Laws and Regulations*

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

7.11 *Record Documents*

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

7.12 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
 - D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
 - E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
 - F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.

- b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
 7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

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

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, 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 Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 *Coordination*

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

8.03 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

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

9.02 *Replacement of Engineer*

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

9.03 *Furnish Data*

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

9.04 *Pay When Due*

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

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means,

methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

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

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

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

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the

completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

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

11.02 *Owner-Authorized Changes in the Work*

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

11.03 *Unauthorized Changes in the Work*

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

11.04 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

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

ARTICLE 12 – CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal

and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:
 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing

Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
 - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

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

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

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

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

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

13.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

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

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

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

14.05 *Uncovering Work*

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

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

14.06 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include

but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

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

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

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

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the

amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

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

15.03 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

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

15.06 *Final Payment*

- A. *Application for Payment:*
 - 1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record

documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions

above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

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

16.02 *Owner May Terminate for Cause*

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

damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

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

16.04 *Contractor May Stop Work or Terminate*

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

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

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

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the **Standard General Conditions of the Construction Contract, EJCDC No. C-700 (2013 Edition)**. All provisions which are not so amended or supplemented remain in full force and effect.

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

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

SC-1.01.A.8. Add the following language to the end of Paragraph 1.01.A.8:

The Change Order form to be used on this Project is bound in the Miscellaneous Forms section.

SC-1.01.A.40. Add the following new subparagraph to the end of Paragraph 1.01.A.40:

- a. Substantial Completion shall include, but not be limited to, installation, testing, and initial cleanup. Final Acceptance will not be made until the entire project has been completed including final cleanup.
- b. Strike "(or a specified part thereof)" from the definition of substantial completion.

SC-4.01.A. Delete Paragraph 4.01.A in its entirety and insert the following in its place:

- A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement.

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

- C. The following reports of explorations and tests of subsurface conditions at or contiguous to the site are known to Owner:
 1. Report dated November 9, 2017 prepared by Terracon Consultants Inc., entitled: Geotechnical Engineering Report Waverly Utilities Solar Project, Waverly, Iowa, consisting of 33 pages.
- D. In the preparation of Drawings and Specifications, Engineer relied upon the following drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the Site:
 1. None.
- E. The reports and drawings identified above are not part of the Contract Documents, but the "technical data" contained therein upon which Contractor may rely, as expressly identified and established above, are incorporated in the Contract Documents by reference. Contractor is not entitled to rely upon any other information and data known to or identified by Owner or Engineer.

SC-5.05. Delete Paragraph 5.05 in its entirety including subparagraphs and insert the following in its place:

- 5.05. The location of the Underground Facilities is not shown on the Drawings. The cost of all of the following will be included in the Contract price and Contractor shall have full responsibility for: (i) reviewing and checking all available information and data, (ii) locating all Underground Facilities affected by construction, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in Paragraph 7.12 and repairing any damage thereto resulting from the Work.

SC-5.06. Delete Paragraph 5.06.A in its entirety including subparagraphs and insert the following in its place:

- A. Owner, Engineer, or Engineer's Consultants did not obtain, use, or review, any specific information regarding Hazardous Environmental Conditions at the site.

SC-5.06.F. Add the following to Paragraph 5.06.F, "Contractor shall not be allowed any adjustment to Contract Price or Contract Times if such condition was caused by Contractor or anyone for whom Contractor is responsible."

SC-5.06.I. Delete Paragraph 5.06.I in its entirety including subparagraphs and insert the following in its place:

- A. If the introduction onto the Project Site of a Hazardous Substance is identified or exacerbation of unknown Hazardous or Special Environmental Conditions was not caused by the Contractor or any of its subcontractors or suppliers of any tier, or any person or entity under the control of the Contractor or any of its subcontractors or suppliers of any tier, the Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work in any area affected by Hazardous Substance. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

SC-5.06.J. Delete "To the fullest extent permitted by laws and regulations from Paragraph 5.06.J.

SC-5.06 Add the following new paragraphs immediately following Paragraph 5.06.K:

- L. Regardless of fault and regardless of any other clause in this Agreement, the Contractor shall not, as a result of the Hazardous Substance encountered on Site, be entitled to any compensatory damages, including without limitation, damages for delay, disruption, liquidated damages, including without limitation, damages for delay, disruption, liquidated damages or consequential damages or any type, including lost profits. If the Hazardous Substance introduction is caused by the Owner or was located at the Project Site before Work commenced on the Project, the Contractor shall only be entitled to an extension of the Contract Time or and the Owner shall assume responsibility for the remediation of such substances."

- M. If the Contractor, or any of its subcontractors or suppliers of any tier, or any person or entity under

the control of the Contractor or any of its subcontractors or suppliers of any tier, is responsible for (i) introducing and discharging Hazardous Substance onto the Site which was not otherwise specified by the Contract Documents; and/or (ii) disturbing Hazardous Substance clearly identified in the Contract Documents, the Contractor shall hire a qualified remediation contractor at Contractor's sole cost to eliminate the condition as soon as possible. Under no circumstances shall the Contractor perform Work for which it is not qualified. Owner, in its sole discretion, may require the Contractor to retain at its cost an independent testing laboratory.

- N. The Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges or engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or resulting from (a) use, disturbance or storage of Hazardous Substance or execution of the Work; and (b) disturbing any Hazardous Substance found on the Site, provided that the Contractor had prior notice of the existence and location of the Hazardous Substance.
- O. When the Contractor notifies the Owner of Hazardous Substance at the Project Site, the Contractor shall include with its notice a written and pictorial delineation of the affected area where the Contractor claims that the Work must stop. If the Owner objects to the delineation of the affected area, the Owner shall respond to the Contractor in writing within one business day explaining the objections and providing the Owner's delineation, if any, of the affected area.

SC-6.03.I Add the following to Paragraph 6.03.I:

- 6. include the following:
 - a. The Contractor's commercial general liability policy shall include a per project endorsement providing that the limits of such insurance specified in the Contract Documents shall apply to the Project without erosion of such limits by other claims or occurrences.
 - b. Additional insured coverage afforded to the Owner pursuant to the Contractor's CGL policy shall apply as primary insurance and the Owner's liability insurance shall apply as excess.
 - c. The (lower tier parties') primary CGL coverage shall be enclosed to include the (upper-tier parties) as an additional insured pursuant to ISO form CG2010 0704 and CG2037 0704 or an endorsement providing equivalent coverage to the (upper-tier parties) with respect to the (lower-tier parties') ongoing operations and completed operations of the (lower-tier parties) for a period of at least two (2) years following the completion of the Project.
 - d. The Contractor's CGL policy shall be endorsed to specify that any person or organization that the named insured has agreed in writing to name as an additional insured is entitled to coverage as an additional insured under this policy.
 - e. Prior to commencing work on the Project, Contractor shall provide the Owner with a certificate of insurance reflecting the Owner's status as an additional insured and a summary of coverage provided under the Contractor's CGL and umbrella policies. In addition, the Contractor shall provide the Owner with a copy of his CGL and umbrella policies applicable to the Project, including a copy of the endorsement pursuant to which the owner is afforded additional insured status, within seven (7) days of issuance by the insurer.

- f. Contractor shall pay, at its sole cost and expense, all deductibles under the builder's risk policy.
- J. The policies of insurance required by this Paragraph 6.03 shall contain the following endorsements when including the Owner as an additional insured:
1. CANCELLATION AND MATERIAL CHANGE ENDORSEMENT: Thirty (30) days Advance Written Notice of Cancellation, Non-Renewal, Reduction in insurance coverage and/or limits and ten (10) days written notice of non-payment of premium shall be sent to the Waverly Municipal Electric Utility at the office and attention of the Certificate Holder. This endorsement supersedes the Standard Cancellation Statement on Certifications of Insurance to which this endorsement is attached.
 2. ADDITIONAL INSURED ENDORSEMENT: The Waverly Municipal Electric Utility, including all its appointed officials, all its employees and volunteers, all its boards, commissions and/or authorities and their board members, employees, and volunteers, and all its officers, agents, and consultants, are named as Additional Insureds with respect to liability arising out of the contractor's work and services performed for the Owner. Commercial General Liability and Automotive Liability coverage shall be primary to the Additional Insureds, and not contributing with any other insurance or similar protection available to the Additional Insureds, whether other available coverage be primary, contributing or excess.
 3. GOVERNMENT IMMUNITIES ENDORSEMENT:
 - a. Nonwaiver of Government Immunity. The insurance carrier expressly agrees and states that the purchase of this policy and the including of the Waverly Municipal Electric Utility as an Additional Insured does not waive any defenses of government immunity available to the Waverly Municipal Electric Utility under Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time.
 - b. Claims Coverage. The insurance carrier further agrees that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under the Code of Iowa Section 670.4 as it now exists and as it may be amended from time to time. Those claims not subject to Code of Iowa Section 670.4 shall be covered by the terms and conditions of this insurance policy.
 - c. Assertion of Government Immunity. The Waverly Municipal Electric Utility shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the insurance carrier.
 - d. Non-Denial of Coverage. The insurance carrier shall not deny coverage under this policy and the insurance carrier shall not deny any of the rights or benefits accruing to the Waverly Municipal Electric Utility under this policy for reasons of governmental immunity unless and until a court of competent jurisdiction has ruled in favor of the defense(s) of governmental immunity asserted by the Waverly Municipal Electric Utility.
 - e. No Other Change In Policy. The insurance carrier and the Waverly Municipal Electric Utility agree that the above preservation of governmental immunities

shall not otherwise change or alter the coverage available under the policy.

SC – 6.03.I.3 Replace the number “10” with the number “30”, in reference to the number of days notice to the Owner prior to cancellation of the insurance policies.

SC-6.03. Add the following new paragraphs immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers’ Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

- a. State: Statutory
- b. Applicable Federal (e.g., Longshoreman’s): Statutory
- c. Employer’s Liability:
 - Bodily injury, each accident \$ 500,000
 - Bodily injury by disease, each employee \$ 500,000
 - Bodily injury/disease aggregate \$ 500,000

The Workers’ Compensation policy shall include a waiver of subrogation clause in favor of the Owner.

2. Contractor’s General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

- a. General Aggregate \$ 2,000,000
- b. Products - Completed Operations Aggregate \$ 1,000,000
- c. Personal and Advertising Injury \$ 1,000,000
- d. Each Occurrence (Bodily Injury and Property Damage) \$ 1,000,000
- e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
- f. Where railroad crossings are specified as part of the work, provide railroad protective liability insurance as required by the railroad permitting authority.
- g. Personal injury liability coverage shall include claims arising out of employment.

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury:
Each person \$ 1,000,000
Each Accident \$ 1,000,000

b. Property Damage:
Each Accident \$ 1,000,000
Combined Single
Limit of \$ 1,000,000

4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

a. Bodily Injury:
Each person \$ 1,000,000
Each Accident \$ 1,000,000

b. Property Damage:
Each Accident \$ 1,000,000
Annual Aggregate \$ 1,000,000

5. Contractor's Pollution Liability

a. Each Occurrence \$ 1,000,000

b. General Aggregate \$ 1,000,000

6. Excess or Umbrella Liability Coverage

a. Each Occurrence \$1,000,000

b. General Aggregate \$1,000,000

7. The following shall be included on policy as additional insured.

Engineer: DGR Engineering
1302 South Union Street
Rock Rapids, Iowa, 51246

Owner: Waverly Municipal Electric Utility
1002 Adams Parkway
Waverly, IA 50677

SC-6.06 Delete Article 6.06 *Waiver of Rights*, including subparagraphs A – D.

SC-7.02. Add the following new paragraphs immediately after Paragraph 7.02.B:

- C. It shall be specifically understood that any work relating to this contract shall not be performed on Sunday unless an emergency arises and special permission is given by the Owner.
- D. Work will be permitted on Saturday; however, involvement of the Owner's personnel will not be allowed. Saturday work must be approved by the Owner.

SC-7.03.B. Add the following to the end of Paragraph 7.03.B:
“Suppliers shall be deemed to impliedly warrant that their products and all component materials incorporated into them are suitable and fit for the intended use of such products and shall be free from defect in material, workmanship or design, such warranty to run to the benefit of OWNER and ENGINEER. The foregoing applies whether the products or their component materials are specified in the Contract Documents or are of Supplier's design. Extended warranties for specific materials and equipment shall be noted in the Specifications for those items.”

SC-7.06. Add the following new paragraphs immediately after Paragraph 7.06.O:

- P. The Contractor shall not award work valued at more than fifty percent (50%) of the Contract Price to Subcontractor(s), without prior written approval of the Owner.

SC-7.09. Add the following new subparagraph to the end of Paragraph 7.09.A:

- 1 CONTRACTOR shall pay all sales, use and excise taxes, and such taxes shall be incidental to the Work and included in the Contract Prices.

SC-7.15.A Add the following immediately after Paragraph 7.15.A:

- B. Contractor shall immediately notify Owner's Representative and Engineer of all emergency situations associated with Contractor's Work.

SC-7.17.A Add the following immediately after Paragraph 7.17.A:

- 1. The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be new, merchantable, of good quality, and that the Work will be free from defects, and that the Work will conform to the Contract Documents.
- 2. The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the workmanship will be free from defects not inherent in the quality required or permitted, that the workmanship will comply with all applicable laws, building codes, rules and regulations, and that the workmanship will conform to the requirements of the Contract Documents.

SC-7.18.A Delete Paragraph 7.18.A and replace it with the following:

“To the fullest extent permitted by law, Contractor shall defend, indemnify and hold harmless Owner, Engineer, their agents, representatives, and employees (“Indemnitees”) from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from or in connection with the performance of the Work, provided that any such claim, damage, loss or expense is caused in whole or in part by any act or omission of Contractor,

anyone directly or indirectly employed by it or anyone for whose acts any of them may be liable. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity or contribution which would otherwise exist as to any party or person described in the Contract Documents.

In addition, Contractor shall indemnify, hold harmless, and pay for the defense of Owner, Engineer, and Engineer's subconsultants from and against claims, losses, or damages in regard to any act or failure to act by Owner or Engineer in connection with general supervision, inspection and/or coordination of Contractor's operations.

Contractor shall, at its own expense, appear, defend, and pay all fees of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith; and, if any judgments shall be rendered against any individual or entity indemnified hereunder in any such action, Contractor shall, at its own expense, satisfy and discharge same. Contractor expressly understands and agrees that any Letter of Credit or insurance protection required by the Contract, or otherwise provided by Contractor, shall in no way limit the responsibility to indemnify, keep and, save harmless, and defend any individual or entity indemnified hereunder as herein provided."

SC-7.18 Add the following immediately after Paragraph 7.18.C.2:

- D. In the event the Owner should prevail in any legal action arising out of the performance or non-performance of the Contract, the Contractor shall pay, in addition to any damages, all expenses of such action including reasonable attorney's fees, all expert witness fees, costs, and litigation expenses incurred by the Owner, including those incurred on appeal. The term "legal action" shall be deemed to include any arbitration, administrative proceedings, and all actions at law or in equity, including appeals.

SC-9.11.A Delete Paragraph 9.11.A.

SC-9.13. Add the following new paragraph immediately after Paragraph 9.12:

- 9.13. Owner will furnish an "Owner's Site Representative" to represent Owner at the Site and assist Owner in observing the progress and quality of the Work. The Owner's Site Representative is not Engineer's consultant, agent, or employee. Owner's Site Representative will be an employee of Owner. The authority and responsibilities of Owner's Site Representative will be as defined and described at the Preconstruction Conference (Paragraph 2.04).

SC-10.03. Add the following new paragraph immediately after Paragraph 10.03.A:

- B. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work. The authority and responsibilities of the Resident Project Representative (RPR) will be as defined and described at the Preconstruction Conference (paragraph 2.04).

SC-11.08A. Add the following to the end of Paragraph 11.08.A:

"CONTRACTOR shall be responsible for notifying the surety of any assignment, modification, or change of the work covered thereby, or extension of time for the project. Failure to provide notice to the surety of any such change shall not exonerate the surety from its obligations under the bond."

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

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
1. if the Bid price of a particular item of Unit Price Work amounts to 20, percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 20 percent from the estimated quantity of such item indicated in the Agreement; and
 2. if there is no corresponding adjustment with respect to any other item of Work; and
 3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

SC-15.01.B.3. Add the following language at the end of Paragraph 15.01.B.3.:

No payments will be made that would deplete the retainage, place in escrow any funds that are required for retainage, or invest the retainage for the benefit of the Contractor.

SC-15.01.D.1. Delete Paragraph 15.01.D.1 in its entirety and insert the following in its place:

1. The Application for Payment with Engineer's recommendations will be presented to the Owner for consideration. If the Owner finds the Application for Payment acceptable, the recommended amount less any reduction under the provisions of Paragraph 15.01.E will become due ten days after the Application for Payment is approved by the Owner, and when due will be paid by Owner to Contractor.

SC 15.01.E.1.k. Delete "Liens" and insert "Claims pursuant to Iowa Code Chapter 573" at the beginning of Paragraph 15.01.E.1.k.

SC-15.02.A Delete "liens" and insert "claims pursuant to Iowa Code Chapter 573" in Paragraph 15.02.A.

SC-15.06.A.2.e Delete "Lien rights arising out of the Work" and insert "claims" in Paragraph 15.06.A.2.e.

SC-15.06.D Delete Paragraph 15.06 and insert the following:
"1. Except as provided in subparagraph (2), retained funds shall be retained by OWNER for a period of 30 calendar days after the completion and final acceptance of the improvement by OWNER. If at the end of the 30 calendar day period claims are on file as provided, OWNER shall continue to retain from the unpaid funds, a sum equal to double the total amount of all claims on file. The remaining balance of the unpaid fund, or if no claims are on file, the entire unpaid fund, shall be released and paid to CONTRACTOR."

SC-15.06.D Add the following subparagraph:
“2. If CONTRACTOR requests an early release of retained funds, payment shall be in accordance with Iowa Code Section 26.13. Retained funds will not be released prior to Substantial Completion of all Work on the project.”

SC-15.07.A Delete “Liens” and insert “claims pursuant to Iowa Code Chapter 573” in Paragraph 15.07.A.

SC-15.08.F. Add the following subparagraph to paragraph 15.08:

F. Contractor shall provide a correction period (warranty) of 2 years from date of substantial completion for the following items:

1. All work.

SC-17.01. Add the following subparagraphs to Paragraph 17.01.B.3:

C. If Owner or Contractor have a disputed matter per Paragraph 17.01.A, the following process shall apply:

1. Within 30 days of the submittal of such claim, Owner and Contractor shall meet and confer regarding the Claim. A good-faith effort to negotiate resolution shall be made by both parties.
2. If the negotiations contemplated by Paragraph SC-17.01.C.1 are unsuccessful, management representatives of Owner and Contractor at least one tier above the individuals who met under SC 17.01.C.1 shall meet, confer, and negotiate within 30 days of the closure of the unsuccessful negotiations.
3. If the Claim is not resolved by negotiation, Engineer’s decision regarding Change Proposals or other requests for decisions shall become final and binding 30 days after termination of the negotiations unless, within that time period, Owner or Contractor:
 - a. gives to the other party written notice of intent to submit the Claim to a court of competent jurisdiction, or
 - b. agrees with the other party to submit the Claim to another dispute resolution process.
4. Notwithstanding any applicable statute of limitations, a party giving notice under Paragraph SC 17.01.C.3.a shall commence an action on the Claim within one year of giving such notice. Failure to do so shall result in the Claim being time-barred and Engineer’s action or denial shall become final and binding.

END OF SECTION

CATEGORY III

Technical Specifications

- **Division 01** **General Requirements**
- **Division 26** **Electrical**
- **Division 31** **Earthwork**
- **Division 32** **Exterior Improvements**
- **Division 33** **Utilities**

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01 1100

SUMMARY OF WORK

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section presents a summary of the intended Work and the Contractor's duties and use of premises relating to the substation project.

1.02 AWARD OF CONTRACTS:

- A. One contract will be awarded for the entire project.

1.03 CONTRACTORS' DUTIES:

- A. Except as specifically noted, provide and pay for:
 - 1. Labor, materials and equipment.
 - 2. Tools, construction equipment and machinery.
 - 3. Water, heat and utilities required for construction.
 - 4. Other facilities and services necessary for proper execution and completion of Work.
 - 5. All applicable taxes and fees including sales and use taxes.
- B. Secure and pay for, as necessary for proper execution and completion of Work, and as applicable at time of receipt of bids:
 - 1. Permits, including building permits.
 - 2. Government fees.
 - 3. Licenses.
- C. Give required notices.
- D. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities that relate to performance of Work.
 - 1. Promptly submit written notice to Engineer of observed variance of Contract

SECTION 01 1100

Documents from legal requirements.

2. Assume responsibility for Work known to be contrary to legal requirements if notice is not submitted.
 3. Necessary changes to the Contract Documents will be accomplished by Change Order if the Contract price or completion time is affected.
- E. Enforce strict discipline and good order among employees. Do not employ on Work:
1. Unfit persons.
 2. Persons not skilled in assigned task.

1.04 CONTRACTOR USE OF PREMISES:

- A. Confine operations at site to areas permitted by:
1. Law.
 2. Ordinances.
 3. Permits.
 4. Contract Documents.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Do not load any structures with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move any stored products that interfere with operations of Owner or other Contractor.
- F. Obtain and pay for use of additional storage or work areas needed for operations.

1.05 ITEMS BY OTHERS:

- A. Related items include those in the Drawings or elsewhere specified as “By Others” or “By Owner”. Specific items as follows:
1. Point of Interconnection step up transformer.
 2. Point of Interconnection metering.

SECTION 01 1100

B. Contractor shall coordinate work for all items by Others as required.

1.06 SITE LOCATION:

A. The proposed site location is located near the intersection of 8th Street SW and Technology Place, Waverly, IA 50677.

B. All easements and right-of-ways necessary for the construction of the Project have been, or will be obtained by the Owner in such a manner that the construction of the Project may rapidly progress.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 2000

PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section presents the Price and Payment Procedures that will be utilized for the project.

1.02 GENERAL:

- A. When the proposal is made on a unit basis the Engineer may specify any combination of construction units that he/she may deem necessary.
- B. The various construction units that are included in this bid and upon which quotations are required are defined by symbols and descriptions set forth in this part.
- C. Separate assembly units are designed for each different arrangement that may be used in the construction of the project. The proposal is based on a consideration of each unit in place and includes only the materials listed on the corresponding construction drawings or as spelled out herein.
- D. The bid prices stated in the proposal shall include all labor, materials, freight, drayage, loading, protection from weather, fabrication, and installation to assure the Owner that the equipment and installation will operate as specified.

1.03 PAYMENT:

- A. All Work required to complete construction shall be deemed to be included in the lump sum price items listed in the Contractor's Bid Schedule.
- B. Payment may be allowed for material suitably stored on site, so long as adequate documentation as specified in the General Conditions is provided to the Owner's satisfaction.
- C. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective Work or material.

1.04 PAYMENTS TO BE WITHHELD:

- A. Applicable retainage, as defined in the Contract Conditions, shall apply to all payments due the Contractor including payment for stored material.

SECTION 01 2000

- B. Amounts equal to maximum potential liquidated damages may be withheld from payments due Contractor when Work is not completed within the specified time. Such amounts shall be in addition to other payments withheld.
- C. Payments withheld will be paid as follows:
 - 1. Normal retainage will be paid as required by the General Conditions.
 - 2. Potential liquidated damages withheld will be retained until final resolution of Liquidated Damages is made by the Owner.

1.05 PAYMENT ITEMS:

- A. Payment items shall be as listed on the Bid Schedule. Measurement of completed work shall be the number of units installed for each unit price item and percentage of completion of the entire item for each lump sum item. (No separate payment will be made for mobilization, engineering or related project initiation expenses.) Payment will be at respective unit or lump sum prices as per the Bid Schedule.
- B. Lump sum prices as listed on the Bid Schedule shall be the full payment for each item as described by the applicable sections of the Technical Specifications and the Drawings.

- 1. SITE PREPARATION: The construction units consist of all labor and materials required to complete the site work as shown on the Drawings and specified herein. All other work specified, including gravel & topsoil stripping, stockpiling and spreading, shall be incidental to the project. Specific construction units are as follows:

Surface Area Items:

M2 12" Subgrade Preparation

M5 Seeding, Fertilizing and Hydro-mulching

Measurement: Furnish and install specified materials. Length and width of work performed (horizontally or vertically as specified) converted to bid item units (sq. yd., sq. ft., ac., etc.). Measurement shall be made as specified by the DGR or Iowa SUDAS when applicable.

Weight Items:

M3 6" Layer Crushed Limestone Surfacing

SECTION 01 2000

Measurement: Number of tons of acceptable material installed in the project as verified by weight tickets. Soil sterilant is incidental to the cost of granular or rock surfacing.

Volume Items:

M1 Topsoil Salvage/Spreading/Grading

Measurement: Plan quantities include excavation and placement of material on site (compacted volume) or import approved lean clay materials to construct plan grades, excluding shrinkage. Plan Quantities will be agreed upon unless additional work is requested during construction, this work will be paid as measured at bid unit prices. The Contractor shall not remove suitable material from the site until grading operations are completed and accepted by the Engineer. The Contractor will not be paid twice for material removed from the site that is subsequently returned to the site for use as embankment material.

Length Items:

M4 Silt Fence/Ditch Checks/Wattles

Measurement: Furnish and install specified materials. Length of work performed converted to bid item units (ft., etc.). Measurement shall be made as specified by the DGR or Iowa SUDAS when applicable.

2. FENCE: A construction consists of furnishing and installing a complete fencing system as shown on the drawings. Includes gates, fabric, posts, guard wire and extensions, fence and post footings, warning signs, etc. Specific construction units are as follows:

N1 Fence and gates (as req'd.)

3. GROUNDING: A construction units consist of a complete grounding system as shown on the drawings. Unit includes furnishing and installing conductor, rods, clamps, and connections to rods, equipment, fences, gates, and structures. Unit also includes furnishing and installing ground conductor to attach to the steel and equipment on steel supports.

O1 Grounding system (as req'd.)

4. ELECTRICAL INTERCONNECTION: A construction unit consists of furnishing and installing the 480 VAC interconnection wiring system, panel boards, circuit breakers, and associated equipment.

SECTION 01 2000

P1 Interconnection wiring, AC panels, conductor/conduit, (as req'd.)

5. PV MODULE SYSTEM: The base construction unit consists of furnishing and installing a 500 kW AC solar garden. Unit includes photovoltaic array modules, inverters, and control, PV wiring, mounting system, PV monitoring system, design and development of drawings.

PV PV Module System, 500 kW AC, (as req'd)

An alternate unit consists of the incremental cost to expand the base solar system (500 kW AC) to 700 kW AC.

PV-ALT PV Module System, 700 kW AC (as req'd)

6. MOBILIZATION: This item shall consist of preparatory work and operations, including but not limited to the necessary movement of personnel, equipment, and incidentals to the project site; for the establishment of offices, buildings and other facilities necessary for work on the projects; and for work and operations which must be performed, and for cost incurred before starting work on the various contract times on the project site.

When an item for Mobilization is included in the proposal, payment will be made at the contract unit lump sum price, and be considered full compensation for costs incidental thereto. This unit will be paid when work on construction site has begun.

U1 Mobilization (as req'd.)

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 3100

PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the Contractor's project management and coordination responsibilities.

1.02 PROJECT MANAGEMENT AND COORDINATION:

- A. Verify layout information shown on Drawings, in relation to property survey and existing benchmarks, before laying out the Work.
- B. Require Installer of each component of the Work to inspect both the substrate and the conditions under which work is to be performed. Do not proceed with installation until unsatisfactory conditions have been corrected.
- C. Any Contractor or Subcontractor working on a specific portion of the project shall so schedule and conduct his work as not to impede unnecessarily any work being done by others on or adjacent to his work.
- D. The Contractor shall be aware that this project will require a high-level of coordination and scheduling with the Owner, Engineer, and major material suppliers.
- E. The Contractor shall have a construction foreman on site at all times during construction, including when subcontractors are working at the site.

1.03 INTERFERENCE WITH SYSTEM OPERATION:

- A. All work by the Contractor in connection with this contract shall be planned with the consent of the Owner, and the Engineer, and shall not in any way interfere with electric service other than specified herein unless consent is given by authorized representatives of the Owner. Cutover and outage arrangements must be made with the Owner 72 hours or more in advance. If loading conditions require, the Contractor may need to work on weekends or nights during equipment cutovers or outages.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 3119

PROJECT MEETINGS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the intended project meetings required of the Contractor.

1.02 PAYMENT:

- A. Project meetings are considered incidental Work with no separate measurement and payment to be made.

PART 2 - PRODUCTS – Not Applicable.

PART 3 - EXECUTION

3.01 GENERAL:

- A. Project meetings shall be coordinated among the respective Contractors, Owner, and Engineer.
- B. The individual requesting the meeting shall contact those to be in attendance in writing providing the following:
 - 1. Purpose of meeting.
 - 2. Date, time and place.
 - 3. Names of others to be in attendance.
 - 4. Additional information as necessary.

3.02 SCHEDULE:

- A. A preconstruction conference will be scheduled by the Engineer to review the following:
 - 1. Contract-Legal Documents and Specifications.
 - 2. Drawings.

SECTION 01 3119

3. General construction requirements.
 4. Coordination of different contractors.
 5. Pay request procedure.
 6. Shop drawing submittal.
 7. Project observation and inspection.
 8. Coordination with affected agencies and utility companies.
- B. Progress meetings shall be scheduled and held as the need arises throughout the Work.

* * * END OF SECTION * * *

SECTION 01 3213

CONSTRUCTION SCHEDULE

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the Contractor's project management and coordination responsibilities.

1.02 CONSTRUCTION SCHEDULE:

- A. Prepare a horizontal bar-chart-type, construction schedule. Provide a separate time bar for each activity and a vertical line to identify the first workday of each week. As Work progresses, mark each bar to indicate actual completion.
 - 1. Submit within 20 days after the notification of award of contract.
 - 2. Prepare the schedule on reproducible media, of width sufficient to show data for the entire construction period.
 - 3. Coordinate each element with other activities. Show each activity in proper sequence. Indicate sequences necessary for completion of related Work.
 - 4. Indicate Substantial Completion and allow time for Engineer's procedures necessary for certifying Substantial Completion.
 - 5. Schedule Distribution: Distribute copies to Owner, Engineer, subcontractors, and parties required to comply with dates.
 - 6. Updating: Revise the schedule after each meeting or activity where revisions have been made.
- B. The following dates are the Owner's suggested schedule; however, the dates marked with an asterisk are dates that must be met for the associated activity.

<u>Task</u>	<u>Required Completion Date</u>
Bids Due	May 1, 2018
Contract Award	May 8, 2018
Approve Contract & Bonds	June 12, 2018
Start Construction	June 13, 2018
Construction Complete	October 1, 2018 *

SECTION 01 3213

* Liquidated damages apply to these dates for this Contractor.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the Contractor's responsibilities regarding the assembly and maintenance of project records.

1.02 PAYMENT:

- A. Project record documents are considered incidental Work with no separate measurement or payment to be made.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 GENERAL:

- A. Maintain at office one copy of:
 - 1. Contract-Legal Documents and Specifications.
 - 2. Addenda.
 - 3. Drawings.
 - 4. Staking sheets.
 - 5. Construction schedules and progress reports.
 - 6. Minutes of preconstruction conference and other construction meetings.
 - 7. Shop Drawings.
 - 8. Change Orders.
 - 9. Field Orders.
 - 10. Test reports.

SECTION 01 3236

- B. File documents in an orderly, readily accessible manner.

3.02 RECORDING:

- A. Legibly mark documents to record location of other facilities and changes made by Change Order or Field Order.
- B. Keep project records current.

3.03 SUBMITTAL:

- A. At completion of construction, the Drawings indicating 'as-constructed' and buried facility information shall be delivered to the Engineer.
- B. With completion of record Drawings, the Contractor's Drawings will be returned if so requested.

* * * END OF SECTION * * *

SECTION 01 3300

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the submittal procedures the Contractor shall follow for the project.

1.02 SHOP DRAWINGS, PROJECT DATA AND SAMPLES:

- A. SHOP DRAWINGS: Original drawings, prepared by Contractor, subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.
 - 1. Prepared by a qualified detailer.
 - 2. Identify details by reference to specification section or detail number from the Drawings.
 - 3. Minimum sheet size: 8-1/2" x 11".
 - 4. Maximum sheet size: 11" x 17".
- B. PROJECT DATA:
 - 1. Manufacturer's standard schematic drawings:
 - a. Modify drawing to delete information that is not applicable to the Work.
 - b. Supplement standard information to provide additional information applicable to the Work.
 - 2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - a. Clearly mark each copy to identify pertinent materials, products or models.
 - b. Show dimensions and clearances required.
 - c. Show performance characteristics and capacities.

SECTION 01 3300

- d. Show wiring diagrams and controls.

C. CONTRACTOR RESPONSIBILITIES:

1. Review Shop Drawings, Project Data and Samples prior to submission to Engineer for review.
2. Verify:
 - a. Performance criteria.
 - b. Field measurements.
 - c. Field construction criteria.
 - d. Catalog numbers and similar data.
3. Coordinate the timing of each submittal with requirements of the Work.
4. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
5. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Engineer's review of submittals, unless Engineer gives written acceptance of specific deviations.
6. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.
7. Begin no work that requires submittals until return of submittals with Engineer's stamp and initials or signature indicating review.
8. After Engineer's review, distribute copies.

D. SUBMISSION REQUIREMENTS:

1. Schedule submissions at least fourteen (14) days before date reviewed submittals will be needed.
2. Accompany submittals with transmittal letter, in duplicate, containing:
 - a. Date.
 - b. Project title and number.
 - c. Contractor's name and address.

SECTION 01 3300

- d. The number of each Shop Drawing, Project Data and Sample submitted. Four (4) copies of all submittals are required.
 - e. Notification of deviations from Contract-Legal Documents, Specifications and Drawings.
 - f. Other pertinent data.
3. Submittals shall include:
- a. Date and revision dates.
 - b. The names of:
 - (1) Subcontractor.
 - (2) Supplier.
 - (3) Manufacturer.
 - (4) Separate detailer when pertinent.
 - c. Identification of product or material.
 - d. Relation to adjacent structure or materials.
 - e. Field dimensions, clearly identified as such.
 - f. Specification section number.
 - g. Applicable standards, such as ASTM number or Federal Specification.
 - h. A statement signed by the Contractor that the submittal has been reviewed and meets the requirements except as noted.

E. ENGINEER'S DUTIES:

- 1. Review and return within fourteen (14) days of receipt.
- 2. Review of separate item does not constitute review of an assembly in which item functions.
- 3. Affix stamp and initials or signature certifying review of submittal noting one of the following:
 - a. No exception taken.

SECTION 01 3300

- b. Make corrections noted – No resubmittal required.
 - c. Revise and resubmit.
 - d. Submit specified item.
 - e. Rejected.
4. Return submittals to Contractor for:
- a. Distribution if marked "No exceptions taken" or "Make corrections noted – No resubmittal required”.
 - b. Resubmittal if marked "Revise and resubmit," "Submit specified item" or "Rejected."

F. RESUBMISSION REQUIREMENTS:

1. Shop Drawings:
- a. Revise initial drawings as required and resubmit as specified for initial submittal.
 - b. Indicate on drawings any changes which have been made other than those requested by Engineer.

G. DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

1. Contractor shall distribute reviewed copies of Shop Drawings and Project Data that carries the Engineer’s stamp, to:
- a. Contractor’s file.
 - b. Job site file.
 - c. Supplier, as appropriate.
2. Engineer will distribute reviewed copies of Shop Drawings and Project Data to:
- a. Engineer’s file.
 - b. Resident Project Representative, if applicable.
 - c. Owner.

SECTION 01 3300

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 3523

SAFETY REQUIREMENTS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the safety requirements that the Contractor shall follow.

1.02 OCCUPATIONAL SAFETY AND HEALTH STANDARDS:

- A. The Contractor shall be responsible for the proper application of the Occupational Safety and Health Standards (OSHS) with regard to construction of the project. The Owner will not be responsible for enforcing any part of the OSHS with respect to the Contractor's equipment or labor practices.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 WORK ON OR NEAR ENERGIZED LINES:

- A. Work may be required to be performed near energized buswork and equipment. The Contractor shall be responsible for providing expertise and experience necessary for working near these energized lines.
- B. All extra costs associated with working near energized lines and equipment shall be included in the construction units and assemblies of the project.

* * * END OF SECTION * * *

SECTION 01 4113

APPLICABLE CODES AND STANDARDS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the Contractor's responsibilities to adhere to applicable codes and standards.

1.02 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

1.03 CODES AND STANDARDS:

- A. Design and workmanship of installation and material shall be judged by tests and requirements set forth in the latest revisions of the following codes and standards:
 - 1. American Society for Testing Materials (ASTM).
 - 2. American National Standards Institute (ANSI).
 - 3. American Institute of Steel Construction (AISC).
 - 4. American Concrete Institute (ACI).
 - 5. National Electrical Manufacturer's Association (NEMA).
 - 6. National Electrical Code (NEC).
 - 7. National Electric Safety Code (NESC).
 - 8. Uniform Building Code (UBC).
 - 9. Insulated Cable Engineers Association (ICEA).
 - 10. Institute of Electronic and Electrical Engineers (IEEE).
- B. Where these specifications specifically reference codes or standards and make changes or interpretations of codes or standards, the unchanged provisions of said codes or standards shall remain in effect.

SECTION 01 4113

- C. Where these specifications provide more stringent requirements than referenced standards, the specifications shall prevail.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 014126

PERMITS, LAWS AND ORDINANCES

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the Contractor's responsibilities pertaining to permits, laws and ordinances.

1.02 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 GENERAL:

- A. The Contractor shall comply with all Federal, State, County and local laws, ordinances and rules and regulations relating to the performance of the Work.

3.02 PERMITS:

- A. The Contractor shall, at his expense, procure all certificates and licenses required of him by law for the execution of his Work.

* * * END OF SECTION * * *

SECTION 01 4500

QUALITY CONTROL

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the quality control items pertaining to the project.

1.02 QUALITY CONTROL:

- A. Quality-control services include inspection, tests, and related actions including reports, performed by Contractor, by independent agencies, and by governing authorities.
- B. Contractor shall employ and pay a qualified independent testing agency to perform tests and inspections specified in other Sections, and those required by authorities having jurisdiction.
 - 1. Contractor is responsible for scheduling inspections and tests.
- C. Retesting: Contractor shall pay for retesting where results of inspections and tests prove unsatisfactory and indicate noncompliance with requirements.
- D. Auxiliary Services: Cooperate with agencies performing inspections and tests. Provide auxiliary serves as requested. Notify agency in advance of operations requiring tests or inspections, to permit assignment of personnel. Auxiliary services include the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities to assist inspections and tests.
 - 3. Adequate quantities of samples of materials that require testing, and assisting in taking samples.
 - 4. Facilities for storage and curing of test samples.
- E. Duties of Testing Agency: Testing agency shall cooperate with Engineer and Contractor in performing its duties. Agency shall provide qualified personnel to perform inspections and tests.
 - 1. Agency shall notify Engineer and Contractor of irregularities or deficiencies observed in the Work during performance of its services.

SECTION 01 4500

2. Agency shall not release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
 3. Agency shall not perform duties of Contractor.
- F. Submittals: Testing agency shall submit a certified written report of each inspection and test to the following:
1. Owner.
 2. Engineer.
 3. Contractor.
 4. Structural Engineer.
 5. Authorities having jurisdiction, when authorities so direct.
- G. Report Data: Reports of each inspection, test, or similar service shall include at least the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making the inspection or test.
 6. Designation of the Work and test method.
 7. Identification of product.
 8. Complete inspection or test data.
 9. Test results and an interpretation of test results.
 10. Ambient conditions at the time of sample taking and testing.
 11. Comments or professional opinion on whether inspected or tested Work complies with requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting or re-inspection.

SECTION 01 4500

- H. Qualifications for Service Agencies: Engage inspection and testing service agencies that are prequalified as complying with the American Council of Independent Laboratories' "Quality Assurance Manual" and that specialize in the types of inspections and tests to be performed.
1. Each agency shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.
- I. At a minimum, the QCP should conform to IEC 62446 Grid Connected Photovoltaic Systems - Minimum Requirements for System Documentation, Commissioning Tests, and Inspections (2009).
- J. Performance tests will be conducted at the final commissioning/acceptance testing, and one year after the acceptance date.
1. Performance tests will include I-V curve traces for all PV strings.
 2. For project acceptance, measured performance at maximum power point must be at least 90% of expected performance, which will be adjusted for concurrently measured cell temperature and plane of array (POA) irradiance. This can be accomplished using a current industry standard I-V curve tracer with capability to compare measured PV string I-V curves with nameplate performance of PV string compensated for concurrent cell temperature and POA irradiance measurements.

If performance is less than 90% at the one year performance tests (measured using the same method as for project acceptance), contractor shall promptly troubleshoot and correct any malfunction or issues as necessary to return project to 90% measured performance or better.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the temporary facilities and controls the Contractor needs to adhere to for the project.

1.02 SECTION REQUIREMENTS:

- A. At the earliest possible time, change over from use of temporary utility services to use of permanent utilities.
- B. Remove temporary facilities and controls before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

1.03 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT:

- A. Provide new materials and equipment for construction of temporary facilities and controls.

PART 3 – EXECUTION

3.01 TEMPORARY UTILITIES:

- A. Provide temporary utilities such as electric power and telephone service(s) to project site for use during construction. Arrange for and coordinate service(s) with local utility companies.
 - 1. Contractor shall pay all use charges for temporary utilities.

SECTION 01 5000

- B. Provide temporary heat for curing or drying of work, and for protection of new construction from adverse effects of low temperatures. Proper safety controls and devices shall be on all temporary heating and ventilation equipment used. Use of gasoline-burning heaters and open-flame heaters is not permitted.
- C. Provide temporary sanitary facilities. Comply with regulations and health codes for type, number, location, and maintenance of facilities. Temporary toilet facilities shall be removed from the site when no longer necessary.

3.02 TEMPORARY CONSTRUCTION FACILITIES:

- A. Provide and maintain field offices, storage trailers, and other support facilities near the project site.
 - 1. Temporary facilities located within the construction area or within 30 feet (9 m) of building lines shall be of noncombustible construction.
- B. Provide temporary enclosures for protection of construction and workers from exposure and inclement weather and for containment of heat.
- C. Install project identification and other signs in locations approved by Owner to inform the public and persons seeking entrance to Project.
- D. Collect waste daily and dispose of waste off-site according with local ordinances, when containers are full.
 - 1. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material according to applicable laws and regulations.
- E. Material Storage:
 - 1. Contractor shall be fully responsible and provide adequate storage for materials that must be housed against weather exposure during entire construction. Materials which may suffer any type of deterioration or damage due to weather exposure shall be covered and or housed. Housing and protection shall be approved by the Engineer. The responsible Contractor shall pay for and/or replace any damaged materials caused by his negligence or failure to provide proper protection.
 - 2. Contractor to coordinate and make all arrangements with the Owner to provide needed exterior storage.

3.03 TEMPORARY CONTROLS:

- A. Provide temporary barricades, warning signs, and lights to protect the public and construction personnel from construction hazards.

SECTION 01 5000

1. Enclose construction area(s) with fence(s) with lockable entrance gates, to prevent unauthorized access.
 2. Contractor shall build and maintain all such provisions to fully comply with all state and local safety requirements and fully protect the public and all workmen throughout the entire construction. Walkways are to be kept well-maintained, well-lit, free from ice and snow, and reasonably clean at all times.
 3. Furnish, install, and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the work in compliance with all pertinent safety and other regulations.
- B. Provide temporary environmental controls as required by authorities having jurisdiction including, but not limited to, erosion and sediment control, dust control, noise control, and pollution control.

3.04 SITE COMMUNICATIONS:

- A. The construction foreman shall be equipped with a cellular phone permitting on-site communications during all times of the construction activity.

3.05 TRAFFIC CONTROL:

- A. The Contractor shall provide, erect and maintain at all times, during the execution of the work and until completion and final acceptance thereof, suitable and requisite barricades, signs and other types of traffic control devices as may be necessary to insure the safety of the public as well as those engaged in the work. Where performing work near County, State, or railroad right-of-way, the Contractor shall conform to that particular entity's traffic control and other requirements.

All barricades shall be protected at night from sunset to sunrise by type "A" low intensity flashing yellow warning lights. All lights shall meet the standards of Section 6E-5 of the "Manual on Uniform Traffic Control Devices (MUTCD)".

3.06 BARRICADES AND LIGHTS:

- A. All open trenches and other excavations shall be protected with suitable barriers, signs and lights to the extent that adequate protection is provided to the public against accident by reason of such open construction. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights.
- B. All barricades and obstructions shall be illuminated by means of acceptable warning lights at night and all lights used for this purpose shall be kept on from sunset to sunrise. Materials stored upon or alongside public streets, roads and highways shall

SECTION 01 5000

be so placed that the work at all times shall be so conducted as to cause the minimum obstruction and inconvenience to the traveling public.

- C. All barricades, signs, warning lights and other protective devices shall be installed and maintained in conformance with applicable statutory requirements and where within right-of-ways as required by the authority having jurisdiction thereover.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 6000

PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the product requirements for the project.

1.02 SECTION REQUIREMENTS:

- A. To fullest extent possible, provide products, materials, and equipment of same kind from a single source.
- B. Equipment manufactured within the continental limits of the United States shall be encouraged.
- C. Deliver, store, and handle products, materials, and equipment according to manufacturer's written instructions, using all means and methods that will prevent damage, deterioration, and loss, including theft.
 - 1. Schedule delivery to minimize long-term storage and to prevent overcrowding construction spaces.
 - 2. Deliver in manufacturer's original sealed packaging with labels and written instructions for handling, storing, protecting, and installing.
 - 3. Inspect to ensure compliance with the Contract Documents and to ensure items are undamaged and properly protected.
 - 4. Store heavy items in a manner that will not endanger supporting construction.
 - 5. Store items subject to damage aboveground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required.

PART 2 – PRODUCTS

2.01 PRODUCT OPTIONS:

- A. Provide items that comply with the Contract Documents, are undamaged, and are new at the time of installation.

SECTION 01 6000

1. Provide products and equipment complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
- B. Do not attach manufacturer's labels or trademarks, except for required nameplates, on surfaces exposed to view in occupied spaces or on the exterior.
- C. Select products, materials, and equipment as follows:
 1. Where these Specifications name only a single product, equipment, or manufacturer, provide the item indicated. No substitutions will be permitted.
 2. Where these Specifications name 2 or more products, equipment or manufacturers, provide 1 of the items indicated. No substitutions will be permitted.
 3. Where products or equipment are specified by name, accompanied by the term "or equal," comply with provisions concerning "substitutions" to obtain approval for use of an unnamed product or equipment.
 4. Where these Specifications describe a product, material, or equipment, listing characteristics required, provide an item that provides the characteristics and complies with requirements.
 5. Where these Specifications require compliance with performance requirements, provide products, materials, or equipment that comply and are recommended in writing by the manufacturer for the application.
- D. Unless otherwise indicated, Engineer will select color, pattern, and texture of any product, material, or equipment from manufacturer's full range of options.

2.02 PRODUCT SUBSTITUTIONS:

- A. Submit four copies of each request for product substitution. Identify product to be replaced, provide complete documentation showing compliance of proposed substitution with all specified requirements, and include the following:
 1. A full comparison with the specified product.
 2. A list of changes to other Work required to accommodate the substitution.
 3. Any proposed changes in the Contract Sum or Contract Time should the substitution be accepted.
- B. Engineer will review the proposed substitution and notify Contractor of its acceptance or rejection.

SECTION 01 6000

PART 3 – EXECUTION: – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 6500

PRODUCT DELIVERY REQUIREMENTS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the requirements that the Contractor shall follow for all products that will be delivered to the project site.

1.02 DELIVERY, STORAGE, AND HANDLING:

- A. Contractor shall make arrangements to receive, unload, and store project materials.
- B. Materials shall be addressed and delivered to the Contractor's project facilities.
- C. The Owner will not receive, unload, or store the Contractor's materials.
- D. The Contractor may be responsible for receiving, unloading, and installing/storing the Owner-Furnished materials as described in the specifications.
- E. Contractor shall return unused or removed material to the Owner's facility.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 7100

EXAMINATION AND PREPARATION

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the examination and preparation requirements the Contractor shall conform to during construction.

1.02 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 EXAMINATION:

- A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, and plumb; substrates within installation tolerances; surfaces that are smooth, clean, and free of deleterious substances; and application conditions within environmental limits. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PROTECTION OF OTHER UTILITIES:

- A. Have all foreign utilities located by contacting Iowa One-Call at 811 or 1-800-292-8989.
- B. Give foreign utility management 48-hour notice prior to excavating in a questioned area. After exposing the foreign utility, notification shall again be given the foreign utility management to allow for on-site inspection before the backfilling operation shall begin. The Contractor, from time to time, shall assist the foreign utility in exposing parallel or intersecting lines to ensure that no damage will be done.
- C. Do all things necessary or expedient to properly protect any and all parallel, converging and intersection lines, joint trenches, highways, pipelines, and all property of others from damage. Make minor trench location adjustments, if necessary.
- D. In the event that such parallel, converging and intersection lines, joint lines, poles,

SECTION 01 7100

highways or other property are damaged in the course of construction of the project, the Contractor shall at his/her own expense restore any or all of such damaged property immediately to as good a state as before such damage occurred.

3.03 PREPARATION

- A. Prepare substrates and adjoining surfaces according to manufacturer's written instructions, including, but not limited to, the application of fillers and primers.

* * * END OF SECTION * * *

SECTION 01 7300

EXECUTION REQUIREMENTS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the execution requirements that the Contractor shall follow during construction.

1.02 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 CUTTING AND PATCHING:

- A. Do not cut structural members without prior written approval of Engineer.
- B. For patching, provide materials whose installed performance will equal or surpass that of existing materials. For exposed surfaces, provide or finish materials to visually match existing adjacent surfaces to the fullest extent possible.
- C. All cutting is by the Contractor responsible for the work. All patching is by the general Contractor.

3.02 EXCAVATIONS:

- A. When working in trenches or excavations, Contractor shall incorporate required shoring of sidewalls, including trench boxes, braces, or other means of shoring to ensure the safety of all personnel.
- B. Contractor is responsible for all open excavations associated with the Contract. Guard open or unattended trenches, foundations, or pole holes 4 inches or more in width with one of the following methods:
 - 1. 1/2 inch plywood that is weighted to prevent movement during windy conditions.

SECTION 01 7300

2 Continuous snow fence and appropriate flashing warning lights.

3.03 INSTALLATION:

- A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned. Clean exposed surfaces and protect from damage. If applicable, prepare surfaces for field finishing.

3.04 SPECIAL PRECAUTIONS FOR WORK IN MANHOLES:

- A. Follow all confined space safety procedures when working in manholes.
- B. Before entering any existing or completed manholes, provide fresh air to the manhole by using adequate mechanical ventilating equipment.
- C. Care shall be taken to avoid fire or explosion in manholes. No smoking, fire, or open lights are allowed in any manhole.

3.05 PROPERTY DAMAGES:

- A. The Contractor shall limit the movement of its crews and equipment so as to cause as little damage as possible to lawns, gardens, crops, orchards, or property and shall endeavor to avoid marring the lands. All fences that are damaged shall be replaced in as good condition as they were found and precautions shall be taken to prevent the escape of livestock. The Contractor shall be responsible for all loss of or damage to the above property whether on or off the right-of-way caused by his crews during the construction of the project and shall restore them to their original condition.
- B. The Contractor shall be responsible for all damage to any existing city, state, county, township, or private streets, roads, parks, railroads, or other property by reason of its operation, or those of its subcontractors. The Contractor shall take all necessary precautions to avoid damages to all roads and comply with all load limits. The Contractor shall repair all roads damaged by their crews in a timely fashion.

* * * END OF SECTION * * *

SECTION 01 7400

CLEANING AND DISPOSAL MANAGEMENT

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the cleaning and disposal management that the Contractor shall conform to during construction.

1.02 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 DISPOSAL OF SALVAGE MATERIALS:

- A. Unless otherwise specified below, all salvage materials are property of the Contractor.
- B. Properly dispose all non-salvageable materials.

3.02 FINAL CLEANING:

- A. Clean each surface or item as follows before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Clean transparent materials, including mirrors. Remove excess glazing compounds. Replace chipped or broken glass.
 - 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean.
 - 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean light fixtures and lamps.
 - 5. Clean the site. Sweep paved areas; remove stains, spills, and foreign deposits. Rake grounds to a smooth, even-textured surface.

SECTION 01 7400

* * * END OF SECTION * * *

SECTION 01 7513

CHECKOUT PROCEDURES

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the checkout procedures that the Contractor shall conform to during final construction.

1.02 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

1.03 PERFORMANCE AND FUNCTIONAL TESTING:

- A. See the technical specifications for responsibilities and requirements regarding performance and functional testing of all equipment installed as specified herein.
- B. The Contractor shall be on-site during testing and checkout to make any corrections that are required on his behalf.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

SECTION 01 7800

CLOSEOUT SUBMITTALS

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the execution requirements that the Contractor shall follow during construction.

1.02 SUBMITTALS:

- A. Record Drawings: Maintain one (1) set of Contract Drawings as Record Drawings. Mark to show installation that varies from the Work originally shown.
- B. Record Specifications: Maintain one (1) copy of the Project Manual, including addenda, as Record Specifications. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications.
- C. Operation and Maintenance Data:
 - 1. The Contractor shall prepare and furnish four (4) manuals of all equipment specified.
 - 2. The Manual shall cover the installation, operation, and maintenance of all equipment and material including:
 - a. Complete catalog data.
 - b. Manufacturer's literature.
 - c. Parts list.
 - d. Maintenance instructions.
 - e. Approved shop drawings.
 - f. Supplier's name, address and telephone number.
 - 3. All such literature shall be bound under hard cover and submitted to the Engineer for review and transmittal to the Owner.
 - a. Should modification be required, the bound literature will be returned to the Contractor for modification and resubmittal to the Engineer.
 - 4. All 'for record' AutoCAD-compatible control and relaying drawings files

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shall be submitted on one (1) compact disc or by email along with four (4) paper copies. The paper size shall be coordinated with the Engineer.

1.03 PAYMENT:

- A. The requirements of this Section are considered incidental Work with no separate measurement and payment to be made.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION

3.01 CLOSEOUT PROCEDURES:

- A. Request Substantial Completion inspection once the following are complete:
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Submit Record Drawings and Specifications, maintenance manuals, warranties, and similar record information.
 - 3. Deliver spare parts, extra stock, and similar items.
 - 4. Changeover locks and transmit keys to Owner.
 - 5. Complete startup testing of systems.
 - 6. Remove temporary facilities and controls.
 - 7. Complete final cleanup.
 - 8. Touch up, repair, and restore marred, exposed finishes.
 - 9. Obtain final inspections from authorities having jurisdiction.
 - 10. Obtain certificate of occupancy.
- B. Upon notification from the Contractor, the Engineer will proceed with inspection or advise Contractor of unfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or advise Contractor of items that must be completed or corrected before the certificate will be issued.
- C. Arrange for each installer of equipment that requires operation and maintenance to provide instruction to Owner's personnel. Include a detailed review of the following:
 - 1. Provide a detailed operation and maintenance manual including diagram of

SECTION 01 7800

system components, description of normal operation; description of operational indicators and normal status of each, table of modes of operation, safety considerations, preventative maintenance requirements, troubleshooting and corrective actions; sources of spare parts and cut-sheets for all components..

2. The contractor shall provide a recommend list of spare parts.
3. Provide the Utility approved training for designated personnel in the operation of the entire photovoltaic energy system, including operation and maintenance of inverter(s), transfer switches, panel board, disconnects and other features. Instruct the designated Utility personnel in removal and installation of panels, including wiring and all connections. Provide the Utility with written instructions and procedures for shut-down and start-up activities for all components of the system.
4. Warranties and bonds.

D. Final Completion procedures include supplying the following documentation:

1. Waiver and Release of Lien forms from the Contractor and all associated subcontractors and suppliers. No partial or conditional lien waivers will be accepted.
2. Certificate of Contractor and Indemnity Agreement.
3. Contractor's statement of taxes paid.
4. Other final documents required by the Contract.

* * * END OF SECTION * * *

SECTION 01 7836

WARRANTIES

PART 1 – GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL, and other CONDITIONS of the Contract are hereby made part of this Section.
- B. This Section describes the warranty clause that the Contractor shall conform to for the project.

1.02 WARRANTIES:

- A. The PV systems shall carry a ten (10) year workmanship warranty by both the manufacturer and the installer including parts and labor.
- B. No PV module will generate less than 90% of its specified minimum power when purchased.
- C. PV modules shall have a 25-year limited warranty guarantying a minimum performance of at least 80% of the original power for at least twenty-five (25) years. Measurement made under actual installation and temperature will be normalized to standard test conditions using the temperature and coefficients published in the module specifications.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

* * * END OF SECTION * * *

DIVISION 26 – ELECTRICAL

SECTION 26 0519

PV SECONDARY CABLE

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes furnishing and installing the secondary cable in conduit or direct buried as herein specified and shown on the Drawings.

1.02 SUBMITTALS:

- A. See Division 1 – General Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Material cut sheets.

1.03 PAYMENT:

- A. See Section 01 2000 – Price and Payment Procedures.

1.04 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

1.05 REFERENCES:

- A. UL 4703 Photovoltaic Cables.

PART 2 - PRODUCTS

SECTION 26 0519

2.01 SECONDARY CONDUCTOR:

- A. This specification covers the requirement for 600 Volt photovoltaic cable suitable for direct burial in the earth or for installation in ducts. The cable shall also be suitable for exposure to sunlight and other atmospheric environments.
- B. Conductors shall be stranded copper, RHH/RHW-2, rated 90° C with 600 Volt cross linked polyethylene (XLPE) insulation.
- C. All conductors shall comply with the specifications of Underwriter's Laboratories, Inc., for PV insulated copper conductors.
- D. Markings:
 - 1. The conductors shall contain printed sequential footage markings.
 - 2. Neutral shall be colored or striped white.
- E. Acceptable manufacturers:
 - 1. Southwire
 - 2. General Cable.
 - 3. Or approved equal.

2.02 SEALING MATERIALS:

- A. Secondary cables which are installed but will not be terminated immediately, shall be capped and sealed at the time the cable is cut.
- B. Cable seals may be heat shrinkable or cold shrinkable.
- C. Acceptable manufacturers:

SECTION 26 0519

1. Raychem, type ESC
2. 3M, EC series
3. Or engineer approved equal.

2.03 COLOR IDENTIFICATION TAPE:

- A. Tape for color coding shall be of number and assortment to accommodate the number of services being identified.
- B. Acceptable manufacturers:
 1. 3M, type Scotch 35

2.04 IDENTIFICATION TAGS:

- A. Tag size shall be 2-1/2" W x 2" H and suitable for writing on with a black permanent marker.
- B. Tags shall have 2 holes at the top for securing.
- C. Tags shall include clear self-laminating cover and black UV resistant zip ties.
- D. Acceptable manufacturers:
 1. Uticom
 2. Or engineer approved equal.

2.05 CABLE LUBRICANT:

- A. Cable lubricant shall be suitable for application to the specified secondary power cable.
- B. Acceptable manufacturer:
 1. Polywater "J"

SECTION 26 0519

2. No equal.

2.06 WARNING TAPE:

- A. All secondary cable trench shall be marked with a buried cable marking ribbon buried at 8 to 12 inches below finished grade.
- B. The marking ribbon shall be permanent red in color with black letters, with wording similar to "Caution – Electric Lines Buried Below" marked continuously along the ribbon.
- C. Marking ribbon shall be made of non-biodegradable polymer, 6" wide minimum and 4 mils thick.
- D. Acceptable manufacturer:
 1. Terra Tape
 2. Or engineer approved equal.

PART 3 - EXECUTION

3.01 GENERAL:

- A. All cable shall be installed in conduit in the locations shown on the drawings.

3.02 PREPARATION:

- A. Where cable must be pulled through conduit or duct, the operation shall be performed in such a way that the cable will not be damaged from strain or dragging. The cable shall be lubricated with a suitable cable lubricant prior to pulling into conduit or duct.
- B. Remove all sharp corners and jagged edges before pulling the cables to avoid creating abrasions in the insulation or protective covering.

SECTION 26 0519

3.03 INSTALLATION:

- A. Cable shall be handled carefully at all times to avoid damage and shall not be dragged across sharp projections. Care shall be exercised to avoid excessive bending of the cable.
- B. The ends of the cable shall be sealed at all times against moisture with suitable end caps. Where the cable is cut, the ends shall be terminated or sealed immediately after the cutting operation.
- C. Wherever possible, cable shall be payed out from the reel mounted on a moving vehicle or trailer. The reel shall be supported so that it can turn easily without undue strain on the cable. The cable shall be carefully placed in the trench by hand. All cable placement shall be done under constant supervision to be certain that no damage to the cable occurs.
- D. The cable shall be inspected carefully by the Contractor as it is removed from the reel in laying operations to be certain that it is free from visible defects. The Engineer shall decide upon corrective action when defects are discovered. Sufficient slack and in no case less than 24 inches shall be left at all terminal points so that movements of cable after backfilling will not cause damaging strain on the cable or terminals.
- E. The minimum bending radius of secondary and service cable is 6 times the overall diameter of the cable. The minimum radius specified is measured to the surface of the cable on the inside of the bend. In all cases, cables shall not be bent with a smaller radius than that allowed by the National Electric Code or by the cable manufacturer, whichever is greater.
- F. Identification of Secondary Cables at Termination Points:
 - 1. As the cables are laid they shall be tagged and color coded with vinyl electrical tape. Paper or cloth tags are not acceptable.
 - 2. When splicing, terminating, capping and related activities are complete, the Contractor shall install permanent marking tags on all secondary cables. All cables shall be identified with tags whether terminated by this Contractor or not.

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3. The Owner shall specify the identification means. Contractor shall ring out unidentified secondary cables if required.

* * * END OF SECTION * * *

SECTION 26 0526

GROUNDING AND BONDING

PART 1 - GENERAL

SCOPE:

This Section includes all labor, materials, equipment and related services to provide proper groundings.

Grounding shall be executed in accordance with the current edition of the National Electric Code.

1.02 SUBMITTALS:

A. Shop Drawings:

1. Material cutsheets, including dimensional data.

1.03 REFERENCES:

- A. National Electric Manufacturers Association (NEMA).
- B. National Electric Code (NEC).

PART 2 - PRODUCTS

2.01 CONDUIT:

- A. Metallic conduit installed per NEC.
- B. A green insulated copper ground wire, size in accordance with Section 250 of the NEC shall be installed.

2.02 GROUND CONDUCTOR:

- A. 4/0 Class B, 19 strand copper conductor, unless otherwise shown.
- B. Splices between copper ground conductors shall be cast weld.
- C. Conductor for risers used in fence grounding shall be copperweld wire.

2.03 GROUND RODS:

- A. Rods shall have steel cores and pure copper on the exterior.

SECTION 26 0526

- B. Size of ground rods to be 5/8 inch x 10 feet.
- C. Coupling materials shall be provided to obtain an overall length of 20' per ground rod, unless otherwise shown.
- D. Connections between ground rods and ground grid conductors shall be exothermic.
- E. Acceptable manufacturers:
 - 1. Chance.
 - 2. Joslyn.
 - 3. Or Equal.

2.04 CONNECTORS:

- A. Underground conductors shall be connected by an exothermic process.
- B. Above-ground connectors shall be either compression type with 2-hole lugs or bolted ground connectors. Splices, when necessary, shall be compression splices or compression tee-taps.
- C. All equipment frames, column legs, fence posts, and equipment cabinets shall be connected to the ground conductor by means of a bolted ground connector.
- D. Fence fabric and barbed wire shall be connected to the ground risers by means of compression connectors.
- E. Acceptable manufacturers:
 - 1. Burndy
 - 2. Or Equal.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Provide a grounding conductor in each run.
- B. The conduit and equipment bond shall be connected to the equipment neutral system at the main switch only.

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- C. Grounding connections shall be provided on the following equipment as required by the National Electric Code and local requirements:
 - 1. The conduit system.
 - 2. The panelboard and enclosures.
 - 3. All enclosures and other metal work around electrical apparatus.
- D. The neutral conductors shall be continuous throughout and shall be grounded in accordance with National Electric Code requirements.
- E. Grounding conductors for branch wiring shall be attached to each outlet to the back of the box using drilled and tapped holes and washer head screw, 6-32 or larger.
- F. Each panelboard, or any other enclosure in which several ground wires are terminated shall be equipped with a ground bus secured to the interior of the enclosure. The ground bus shall be equal to the neutral bus and shall have a separate lug for each ground conductor.
- G. Continuity of equipment ground shall be maintained throughout the system. The Contractor shall exercise every precaution to obtain good contact at all conduit connections, panel boxes, pullboxes, etc. Where it is not possible to obtain good contact, bonding shall be provided.
- H. Ground rods shall be driven vertically the full length of the rod(s) until the top is 16 inches below the final grade elevation.

* * * END OF SECTION * * *

SECTION 26 2923

PANELBOARDS

PART 1 - GENERAL

1.01 SCOPE:

- A. This Section includes all labor, materials, equipment and related services to furnish and install the panelboards as shown on the Drawings and herein specified.

1.02 SUBMITTALS:

- A. Shop Drawings:
 - 1. Material cutsheets, including dimensional data.

1.03 REFERENCES:

- A. National Electric Manufacturers Association (NEMA)
- B. National Electric Code (NEC)

PART 2 - PRODUCTS

2.01 277/480 VAC PANEL:

- A. Panelboard shall be finished in hammer tone gray with 15% spare breakers.
- B. Panelboard shall be fabricated of sheet steel of the following minimum gauges: door and trim - #12; enclosure per U.L. specifications. Enclosure shall be NEMA 3R.
- C. Circuit breakers shall be full-size ambient compensated, thermal magnetic type, with common trip mechanism for multi-pole type, bolted connectors and with the number of poles, voltage, type, and interrupting rating.
- D. Branch breakers shall be GFCI rated as noted on the drawings.
- E. Circuit breaker shall be Square D, Type QO.
- F. Panel shall be Square D Type QO, or approved equal.

2.02 BUSSES:

- A. Bussing shall be rectangular cross section, copper, with full capacity neutral and ground.

SECTION 26 2923

PART 3 - EXECUTION

3.01 CIRCUIT BREAKERS:

- A. Circuit breakers shall be arranged in the panels so that the breakers of the proper trip settings and numbers correspond to the numbering in the panel schedules.

3.02 WIRING:

- A. Wiring for branch circuits shall be color coded and shall be so noted on the directory of the panels. The same color coding system shall be used throughout the entire job and shall be in accordance with schedule in the cable section.

* * * END OF SECTION * * *

DIVISION 31 – EARTHWORK

SECTION 31 2316

EXCAVATION

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes excavation in accordance with this specification at the locations shown on the Drawings or as directed by the Engineer.

1.02 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

1.03 PAYMENT:

- A. See Section 01 2000 – Price and Payment Procedures.

PART 2 - PRODUCTS – NONE

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS:

- A. The Contractor shall perform all excavation of every description and of whatever substances encountered to the suggested or recommended depths indicated on the drawings or as specified.
- B. During excavation, care shall be taken to prevent slides or cave-ins. All excavated materials not required or suitable for backfill shall be wasted as directed by the Owner.
- C. All shoring and sheeting required to perform and protect the excavation, and as required for the safety of the employees, shall be installed as quickly after excavation as possible.
- D. No trenching or plowing shall be allowed when frost exceeds 3 inches in depth.
- E. It will be the Contractor's responsibility to protect all existing utilities. Any existing utilities damaged by the Contractor will be replaced or repaired at the Contractor's expense. The Contractor is cautioned to seek the help of the appropriate utility office in locating existing lines.

SECTION 31 2316

- F. All existing utilities crossing the trench path shall be exposed by pot-holing or hand digging. Cost of locating foreign utilities shall be deemed to be included in the trenching unit prices.

3.02 TRENCH EXCAVATION:

- A. All minimum trenching depths specified are as measured from the final grade to the top surface of the cable.
- B. The routing shall be as shown on the staking sheets and plans and specifications unless conditions encountered are such that changes are necessary to accomplish the work. In such event, the Engineer shall be notified promptly.
- C. If rock or other difficult digging is involved, the Contractor shall determine the nature and extent of the difficulty and the Engineer will determine whether re-routing, special backfill trenching or other changes are necessary. Loose soil, gravel or granular soils will not be considered as "difficult digging."
- D. Trenches shall be dug with sufficient width to easily contain the required conduits and/or cables.
- E. Where trenches are intended for more than one cable, particular care must be taken to provide for extra depth and width to allow for soil falling into the trench during the laying of the first cables.
- F. Care shall be exercised to minimize the likelihood of waterflow since this may cause trench damage and reduction in trench depth. When this occurs, the trench must be cleared to the specified depth before installing the cable.
- G. Cost of removal or dewatering of incidental water in trench is deemed to be included in trenching unit(s).
- H. All trenches shall follow straight lines between staked points as far as possible.
- I. The trenches shall be dug so that the bottom has a smooth grade. Large rocks, stones and gravel in excess of one (1) inch shall be removed from the bottom of the trench. Where this cannot be done, a 2 inch layer of sand or clean soil shall be placed in the bottom of the trench.
- J. Trenches shall be left open for the shortest practicable time to avoid creating a hazard to the public and to minimize the likelihood of trench collapse due to other construction activity, rain, accumulation of water in the trench, etc.
- K. No more than 500 feet of main line trench open at one time. All backfill and clean up in the construction area shall be complete before opening additional trench.

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3.03 PLOWING EXCAVATION:

- A. When cables are to be installed by plowing, the plowing equipment shall be subject to the approval of the Engineer, Owner and the public authorities having jurisdiction over highway and road right-of-ways. The plow must be provided with a means to assure positive holddown of the plow blade to provide proper depth at all times.
- B. The design of the plowshare shall be such that the cable (or conduit) passing through the plow will not be bent in a radius less than 12 times the outside diameter of the largest cable (or conduit). The plowshare shall be capable of handling the cables and conduit, as necessary.
- C. The equipment shall be capable of installing the cables and conduit at the specified depths under all terrain conditions of plow utilization.
- D. The equipment and construction methods used by the Contractor shall be such as to cause minimum displacement of the soil. The slot made in the soil by the cable plows shall be closed immediately by driving a vehicle wheel over the slot or by other suitable means.
- E. During the plowing operation, care shall be exercised to feed the cable or wire into the ground through the plow loosely and at minimum tension. Besides using proper equipment and construction methods, the Contractor shall furnish competent supervision at all times at the site of plowing operations to assure compliance with these specifications.
- F. If, during the plowing operation, the plow should strike a buried object or rock that would stop the equipment and necessitate removal of the plow from the ground, the plow shall be removed from the ground carefully and, if practicable, without backing the plow to avoid damage to the cable. If it should be necessary to back the plow to remove it from the ground, the cable shall be uncovered a sufficient distance back to for inspection by the Engineer to determine whether the cable or wire has been damaged.
- G. Every instance of damaged cable observed at any time, whether prior to installation, during installation, or when discovered by test or observation subsequent to installation in plant, shall be immediately called to the attention of the Engineer. Repair or correction of such damage shall be done promptly and in accordance with the written instruction of the Engineer.

3.04 DUCTBANK EXCAVATION:

- A. Excavate the ductbank area to the depth required as shown on the drawings. The estimated average trench depth would range from four feet five inches (4'5") to seven feet (7') deep; however, Bid prices shall include excavating to depths of not more than ten (10) feet.
- B. The excavated material, which will be used as backfill, shall be stockpiled, otherwise removed to a suitable fill site as directed by the Owner.

SECTION 31 2316

- C. Compact the bottom of the trench enough to ensure a smooth level surface to support duct installation and to insure the required concrete cover thicknesses are met.
- D. All excavations shall be kept dry. The Contractor shall provide, install, operate and maintain such dewatering capacities and systems that may be necessary. The cost for such dewatering shall be considered incidental to the ductbank bid unit.
- E. Non-suitable backfill material, concrete, asphalt or other refuse material shall be properly disposed of by the Contractor.
- F. Changes in the configuration of the ductline during construction due to obstacles such as utilities or grade change shall be considered as normal operation and no additional compensation shall be allowed.
- G. Sleeving of obstacles during construction such as utilities, shall be considered as normal operation and no additional compensation shall be allowed.
- H. Trenches shall be of necessary width for the proper laying of the conduit, and the sides as nearly vertical as is practical. The bottom of the trenches shall be accurately graded to provide uniform base and support for each section of the conduit on undisturbed soil at every point along its entire length. Overdepth excavation shall be backfilled with gravel, properly tamped to bring trench back to the proper grade.
- I. Grade the trench so that it will have a fall of at least 3-inches in 100 feet toward the lower manhole or from the high point of the section toward both manholes. When an obstruction is encountered in the trench and it is necessary to dig a deeper trench than would otherwise be required in order to obtain drainage, refer the matter to the Engineer to determine whether the extra excavation should be made.
- J. If rock or other difficult digging is involved the Contractor shall determine the nature and extent of the difficulty and the Owner or Engineer will determine whether re-routing, special excavation and special backfill, or other changes are necessary. Loose soil, gravel, or excess ground water will not be considered as "difficult digging".

* * * END OF SECTION * * *

SECTION 31 2323

BACKFILLING

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes backfilling in accordance with this specification at the locations shown on the Drawings or as directed by the Engineer.

1.02 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

1.03 PAYMENT:

- A. See Section 01 2000 – Price and Payment Procedures.

PART 2 - PRODUCTS - NONE

PART 3 - EXECUTION

3.01 GENERAL REQUIREMENTS:

- A. The first six (6) inches of trench backfill shall be free from rock or other material which might damage the direct buried cable jacket. Backfill shall contain no solid material larger than one (1) inch. This soil layer shall be carefully hand compacted so that the cable will not be damaged.
- B. Pieces of scrap cable shall not be buried in the trench as a means of disposal, but shall be disposed of off the right-of-way at the expense of the Contractor.

3.02 TAMPED BACKFILL:

- A. Where tamped backfill is called for, the Contractor shall complete the backfill by mechanically tamping in six (6) inch layers until the backfill material has reached the existing ground surface.
- B. The top four (4) inches of backfill shall be the original topsoil in the area.
- C. The final surface shall be raked clean and left with a 1" crown suitable for seeding.

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- D. This backfill technique shall be used on all alleys, finished lawn areas, and beneath slab replacement. Any settlement shall be covered by the Contractor under the warranties section of the General Requirements.

3.03 SPECIAL BACKFILL:

- A. Where necessary, the Contractor shall remove undesirable backfill material from the site and shall furnish and install acceptable material.
- B. Non-suitable backfill shall be properly disposed of by the Contractor.
- C. The Contractor shall provide a six (6) inch bed of sand in the bottom of the trench and then an additional twelve (12) inches of sand to cover the cable.

3.04 CLEAN-UP OPERATION:

- A. The Contractor shall at all times keep the premises free from accumulations of waste material and rubbish caused by his employees or work and at the completion of the work he shall remove all rubbish, tools, bore slurry, undesirable backfill, etc.
- B. All streets upon which excavation has taken place shall be left restored equal to their original condition.
- C. Any items of existing construction, which are to be retained in the finished project, damaged by the Contractor shall be replaced or repaired by the Contractor to the Owner's satisfaction at no additional expense to the Owner.

* * * END OF SECTION * * *

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 32 1540

ROCK SURFACING

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes furnishing and installing the rock surfacing as herein specified and shown on the Drawings.

1.02 SUBMITTALS:

- A. See Division 1 – General Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Rock gradation.
 - 2. MSDS sheets for soil sterilant.

1.03 PAYMENT:

- A. See Section 01 2000 – Price and Payment Procedures, for description of units.
- B. Payment shall be at the Contract unit prices as shown on the Bid Form. Furnishing and applying soil sterilant shall be incidental to the cost of the crushed rock surfacing.

1.04 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

PART 2 - PRODUCTS

2.01 CRUSHED ROCK SURFACING:

- A. Crushed limestone with suitable durability for long-lasting service, similar to the materials available from local quarries.
- B. The 3' strip of rock shall be installed along the centerline of the fence. A six-inch layer of stone crushed limestone surfacing as shown on the Drawings.

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- C. The layer shall be a crushed limestone class A roadstone surfacing and shall conform to the gradation listed below:

Sieve Size	Percent Passing
1.0 inch	100
0.75 inch	95-100
0.50 inch	70-90
No. 4	30-55
No. 8	15-40
No. 200	6-16

- D. Shall consist of homogeneous quality from one approved quarry and shall not contain uncrushed rock or inverted stone even if it passes the sieve analysis.
- E. Gradation of crushed aggregate to be used shall be provided and reviewed by the Engineer before construction.

2.02 SOIL STERILANT:

- A. Apply soil sterilant to areas that will have rock surfacing.
- B. Shall be suitable for control of all annual and perennial weeds and grasses.
- C. Provide 'Sprakil SK-13' by SSI Maxim Company or approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Crushed Rock Surfacing:
1. Shall be applied to the entire area centered along the fence and in the other areas shown outside the fence as shown on the Drawings.
 2. Surfacing shall be repaired, replaced, leveled, and rolled after all installation is complete for final acceptance.
- B. Soil Sterilant:
1. All areas receiving rock shall be treated.
 2. Treatment shall be applied to sub-grade prior to rock placement.
 3. Time of application of the sterilant shall be directed by the Engineer.
 4. Contractor shall be responsible for preventing the spread of soil sterilant to areas other than specified.

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5. Product shall be applied at a rate equal to one (1) pound per one hundred square feet of area or per manufacturer's recommendations.

* * * END OF SECTION * * *

SECTION 32 3100

FENCING

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes furnishing and installing the fence and gates as herein specified and shown on the Drawings.

1.02 SUBMITTALS:

- A. See Division 1 – General Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Material cutsheets, including dimensional data.

1.03 PAYMENT:

- A. See Section 012000 – Price and Payment Procedures, for description of units.
- B. Payment shall be at the Contract unit prices as shown on the Bid Form.

1.04 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

1.05 REFERENCES:

- A. National Electric Safety Code (NESC), current edition.
- B. ASTM Specification A121, A392, A153, A53, A120, current editions and revisions.

PART 2 - PRODUCTS

2.01 FENCING MATERIALS:

- A. The fence fabric shall be a minimum of 8 feet high. It shall consist of a minimum No. 9 AWG steel wire, woven into a 2 inch square mesh. The sides of the mesh pattern shall be approximately 45° to a vertical line. The fabric shall be galvanized in accordance with ASTM A392, Class II.

SECTION 32 3100

- B. Barbed wire shall consist of three strands of 12-1/2 AWG steel wire with 4-point barbs at a maximum spacing of 4 inches apart. The wire shall be galvanized in accordance with ASTM A121, Class 3.
- C. All posts shall be steel and conform to the diameter and length as indicated on the drawings and in the specifications for the specific type of application. Tubular material shall conform to ASTM A53 Grade B, for round shapes. All posts shall have tops that exclude moisture. End and corner posts shall be 2-7/8 inches O.D. minimum. Gate posts shall be 4 inches O.D. minimum. Line posts shall be 2-3/8 inches O.D. minimum.
- D. The extension arm shall be made of pressed steel or malleable iron and should be capable of supporting a downward force of 300 pounds. The extension arm shall be galvanized in accordance with ASTM A153, Class B1.
- E. The stretcher bar shall be galvanized and used for securing the fabric to all terminal posts. One bar is required for each gate and end post and two are required for each corner and pull posts.
- F. The top rails shall be round steel pipe having a minimum outside diameter of not less than 1-5/8 inch. Length shall be a minimum of 18 feet connected into a run with 6 inches minimum expansion couplings. Top rails shall be galvanized in accordance with ASTM A120.
- G. All end, corner, pull and gate posts shall be braced with same material as the top rail and trussed with tension rods (3/8 inch minimum diameter) and turnbuckles.
- H. The tension wire shall be a No. 7 AWG galvanized steel wire. All gate frame materials shall be hot dipped galvanized and constructed of tubular steel members that shall be welded at the joints. Horizontal and vertical struts are required to provide for a rigid panel allowing for no visible sag or twist.
- I. Hinges shall be heavy duty and allow maximum swing of all gate leaves as shown on the drawing. The hinges shall not twist or turn under the action of the gate and shall provide ease of operation.
- J. Latches and keepers shall all be heavy-duty construction of galvanized steel or malleable iron. Latches shall be of a heavy drop bar type. A keeper shall be provided which will secure the free end of the gate in the open position.
- K. Bands, wire ties, and clips for securing the fabric to top rails, line posts, terminal posts, and tension wires shall be galvanized steel and of adequate strength for the purpose intended.

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PART 3 - EXECUTION

3.01 INSTALLERS:

- A. An experienced fence erector who will be supervised by the Contractor shall perform fence installation.

3.02 INSTALLATION:

- A. Erect the chain link fence and gates around the area as shown on the Drawings.
- B. Ground surface irregularities, and other obstacles that would interfere with proper erection of the fence shall be cleared and removed in advance of starting other fencing work.
- C. The Contractor shall perform all required excavating, backfilling and compacting of backfill for posts, gate stops and gatekeepers. Posts shall be plumb and in alignment. Posts shall be set in concrete as shown on the drawings. The cement content of the concrete shall be not less than 5-1/2 bags per cubic yard of concrete.
- D. Gates shall be erected at the location shown, and shall be adjusted to operate in an approved manner. Install gates as close to the finished rock surfacing as possible while ensuring that the gates can still swing freely open.
- E. Fabric shall not be installed until a minimum of 48 hours after line posts are installed.
- F. The fabric shall be placed on the outside of the posts, stretched taut and secured to the posts, top rail and tension wire. The fabric shall be secured to the line posts with wire ties or metal bands at maximum intervals of 15 inches.
- G. The top and bottom edges shall be secured, respectively, to the top rail and tension wire with ties not exceeding spacing of 24 inches. The fabric shall be secured to terminal posts by means of the stretcher bar that is passed through the end loops of the fabric and is secured to the terminal posts by metal bands spaced at a maximum interval of 15 inches.
- H. When installed, the fabric shall extend one inch below the finished rock surfacing. Top rails to follow general contour of sub-rock elevation.
- I. Damaged areas of galvanizing shall be repaired as required, cleaned with mineral spirits of xylene, followed by wire brushing. After wire brushing, these areas shall be re-cleaned with the solvent to remove residue. After cleaning, the damaged areas shall be given two coats of zinc dust-zinc oxide paint. Except for painting damaged areas of galvanizing, no other painting of the fence is required.
- J. The fence, posts, and gates shall be attached to the ground grid as shown on the Drawings.

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- K. Install warning signs on the fence and gates as shown on the Drawings. Signs shall be a plastic sign made by Tech Products, Inc. or equal.

* * * END OF SECTION * * *

SECTION 32 9219

SEEDING, FERTILIZING, AND MULCHING

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes preparing the ground surface, furnishing and applying fertilizer, furnishing and sowing seed, compacting and repairing in accordance with this specification at the locations shown on the Drawings or as directed by the Engineer.

1.02 SUBMITTALS:

- A. See Division 1 – General Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Material cutsheets.

1.03 PAYMENT:

- A. See Section 01 2000 – Price and Payment Procedures, for description of units.
- B. Payment shall be at the Contract unit prices as shown on the Bid Form.

1.04 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

PART 2 - PRODUCTS

2.01 SEED:

- A. The seed or seed mixture to be furnished and the minimum percentage by weight of pure live seed of each species in each lot of seed and the maximum percentage of weed seed shall be as stated below. All seed used shall be labeled in accordance with U.S. Department of Agriculture "Rules and Regulations under the Federal Seed Act" in effect on the date of invitations for bids. All seed shall be furnished in standard containers, unless exception is granted by the Engineer. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

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B. For the designated disturbed areas, the seed mixture shall be:

1. Sharp's El Paso Turf Mix
 - 35% Crested Wheatgrass, Ephraim
 - 30% Annual Ryegrass, Gulf
 - 23% Buffalograss, Scharp's Improved with KNO₃
 - 12% Blue Grama, Native

Application Rate: 3 lbs. per 1,000 sq. ft. (1.5 lbs. each)

NOTE: The Contractor is reminded that the above mixtures are for live seed.

C. Seed Test:

1. Each lot of seed shall be subject to sampling and testing at the discretion of the Engineer. Sampling and testing will be in accordance with the latest "Rules and Regulations Under the Federal Seed Act" in effect on the date of the purchase order. Tags from bags used on the project should be submitted to the Engineer.
2. In the event that reports of seed analysis are not received prior to sowing, and tests made thereafter indicate the seed used did not meet the specification requirements, the Engineer may require the Contractor to reseed the entire area affected during the next suitable season with sufficient seed to provide the total quantity of pure live seed specified, or will deduct from the contract payment an amount sufficient to cover the cost of seed and reseeding operations.

2.02 FERTILIZER:

- A. Lime: No lime application is required.
- B. Fertilizer: Fertilizers shall be commercial carriers of available plant food elements or combinations thereof, either as inorganic or organic materials, and shall conform to the applicable State fertilizer laws. The fertilizer shall be uniform in composition, dry, and free flowing material in condition for application by suitable equipment. The fertilizer shall be delivered in unopened bags or other convenient standard containers, each fully labeled with the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be acceptable.
- C. All areas seeded shall be fertilized with a commercial fertilizer having a nitrogen-to-phosphorus-to-potassium ratio of 3-1-2 and at least 35 percent slow-release nitrogen. Fertilizer shall be applied at a rate of 1 lb. per 1,000 sq. ft. per year.
- D. Fertilizer Test:

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1. The Engineer shall be furnished with tags from bags of fertilizer used on the project.
2. In the event that reports of fertilizer analysis are not received prior to the application of fertilizer and tests when made show the fertilizer used did not meet the minimum specification requirement, the Contractor may be required, at the discretion of the Engineer, to supply and distribute sufficient additional materials over the entire areas affected to bring the amounts up to specification requirements, or have deducted from the contract payments an amount sufficient to cover the cost of such quantities of fertilizer and the application thereof.

2.03 MULCHING:

- A. Required on disturbed areas.
- B. Materials to be 1.5 tons dry straw or 2 tons prairie hay per acre.
- C. Mulch shall be knifed or embedded into the soil with the proper equipment - See paragraph 3.01 D below.

PART 3 - EXECUTION

3.01 GENERAL:

- A. Areas to be seeded, those requiring special preparation of the ground surface, and those in a satisfactory condition to remain undisturbed, will be shown on the Drawings and/or determined by the Engineer prior to the seeding phase.
- B. Suitable equipment necessary for proper preparation of the ground surface and for handling and placing all required materials shall be on hand, in good operating condition, and shall be approved by the Engineer before the various operations are started. The Contractor shall demonstrate to the Engineer before starting the various operations that the application of required materials will be made at the specified rates.
- C. During the operations of distributing fertilizer, or sowing seed, the areas covered shall be checked against the quantities of material used when one fourth, one half, and three fourths of the affected areas have been covered to verify the proper rate of application. Upon completion of the distributing operations, a final check of the total quantities of materials used shall be made against the total acreage fertilized, and sown. If it is determined, by this checking of quantities used or by inspection either immediately after distributing the materials or after there is a show of green, that uniform distribution at rates at least equal to the minimum required, at the discretion of the Engineer, either to distribute additional quantities of these materials on the areas designated to meet the specification requirements, providing seasonal conditions are favorable, or have deducted from his payment an amount

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sufficient to cover the cost of the material and also the cost of distribution. Skipped areas wider than the distance between drills, in the case of drilling operations, or areas averaging more than 4 inches in width in the case of broadcasting operations, are subject also to this provision.

- D. Mulch shall be evenly and uniformly distributed and anchored into the soil. All accessible mulched areas shall be consolidated by tilling with a mulch stabilizer, and slope areas shall be tilled on the contour. Equipment shall be operated in a manner to minimize displacement of the soil and disturbance of the design cross section.
- E. When conditions are such, by reasons of extreme drought, excessive moisture, or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped and it shall be resumed only when the desired results are likely to be obtained.

3.02 ORDER OF WORK:

- A. The order of work operations shall be as follows, except as modified by the Engineer.

1. Preparing the Ground Surface:

- a. Removing of Debris: Prior to the commencement of seeding, all large stones, cables, wire, or any waste materials shall be removed from the site. All heavy growths of vegetation on the site which may interfere seriously with subsequent seeding, or sowing operations shall be mowed, raked, and used for mulch if suitable, or hauled off the site, as directed by the Engineer.

During seeding operations, the ground surface shall be kept cleared of all large stones, roots, cable, wire, or any other materials that might hinder subsequent fertilizing, sowing, or maintenance operations.

- b. Finished Grading: Prior to seeding the areas shall be given a finished grading as needed to correct irregularities in the surface, due to previous operations or other causes and to restore the prescribed grade.
- c. Discing and Harrowing: After the finish grading has been completed, the areas to be seeded shall be thoroughly prepared to a depth of 1 to 2 inches by discing or harrowing or by other means approved by the Engineer.
- d. Fertilizing: Fertilizer shall be distributed uniformly over the areas to be seeded at a rate that will provide not less than the minimum quantity of each fertilizer ingredient specified. Distribution shall be

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by hand or by a common fertilizer distributor, or other equipment approved by the Engineer. Use of a grain or seed drill, equipped to sow seed and distribute fertilizer at the same time, will be permitted.

- e. **Sowing Seed:** All sowing of seed shall be completed between the dates of April 1 to May 1 and/or August 15, to September 30. Sowing delayed beyond the specified dates, and due to circumstances beyond the Contractor's control, may be continued upon written approval from the Engineer, but in no instance more than 10 calendar days beyond the latest date. The Contractor shall employ a method of sowing satisfactory to the Engineer, and where practical he shall make use of approved power drawn drills or seeders, hand seeders, or other approved equipment. When sowing seed mixtures, the Contractor shall keep the seed thoroughly mixed during the sowing operations to prevent separation of species and the subsequent lack of uniform distribution of species. When drills or other sowing equipment are used, they shall be equipped with markers or other means to provide that the successive seeded strips will overlap or be separated by a space no greater than the space between drills of the equipment being used. The sowing shall be stopped when satisfactory results are not likely to be obtained due to excessive moisture conditions, high winds, or other unfavorable conditions. It shall be resumed only when conditions are favorable again or when alternate or corrective measures and procedures which are approved by the Engineer have been adopted. The rates of sowing specified are on the basis of the minimum total of pure live seed per acre. Actual sowing rates will be in excess of this quantity because of the existence of inert materials in all lots of seed. The actual seeding rate of the seed as delivered (including the inert and other material) is determined by dividing the minimum pounds of pure live seed, as specified, by the percentage by weight of pure live seed of the delivered seed.

- f. **Cleaning Up:** After the seed has been sown, and prior to compacting, the surface shall be cleared of all stones, or other objects larger than 2 inches in greatest diameter, and all wire, roots, brush, or other objects that may interfere with subsequent mowing operations.

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- g. Compacting: Immediately after the sowing operations have been completed, unless otherwise directed by the Engineer, the entire area shall be compacted by means of a culti packer, roller, or other approved equipment, in order to reduce air pockets to a minimum. When a culti packer or other equipment that leaves a roughened surface is used, the final rolling shall be along the contour and at right angles to the existing slopes to reduce water erosion, or at right angles to the prevailing wind to reduce dust, as directed by the Engineer.

3.03 REPAIRING:

- A. When the surface has become gullied or otherwise damaged, within one year from the date of acceptance of this project, the affected areas shall be repaired to re establish the grade and the condition of the soil, as directed by the Owner and provided for in this specification, and shall then be reseeded as specified herein. Later placing and compacting of fill material will be in accordance with the applicable grading specifications.

* * * END OF SECTION * * *

DIVISION 33 – UTILITIES

SECTION 33 7119.01

CONDUIT

PART 1 - GENERAL

1.01 SCOPE:

- A. The GENERAL, SUPPLEMENTAL and other CONDITIONS of the Contract and the GENERAL REQUIREMENTS (Division 1) are hereby made part of this Section.
- B. Work under this Section includes furnishing and installing the conduit as herein specified and shown on the Drawings.

1.02 SUBMITTALS:

- A. See Division 1 – General Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Material cutsheets, including dimensional data.

1.03 PAYMENT:

- A. See Section 01 2000 – Price and Payment Procedures.

1.04 WARRANTY:

- A. See Division 1 – General Requirements, for warranty requirements.

1.05 REFERENCES:

- A. National Electric Manufacturers Association (NEMA)
- B. National Electric Safety Code (NESC), current edition.
- C. National Electric Code (NEC)

PART 2 - PRODUCTS

2.01 BORED CONDUIT:

- A. Conduit shall be straight lengths (stick) PVC schedule 40, continuous HDPE SDR 13.5, or Bore-Guard.
- B. All necessary fittings and joint cement shall be provided. HDPE shall be heat fused at joints.

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- C. Conduit shall be smooth walled internally.
- D. HDPE shall be either red or black w/red stripe.
- E. Acceptable Manufacturers:
 - 1. Carlon.
 - 2. Or engineer approved equal.

2.02 CONDUIT BELL ENDS:

- A. Bell ends shall be PVC and sized to properly fit conduit.
- B. Acceptable Manufacturers:
 - 1. Carlon.
 - 2. Or engineer approved equal.

2.03 CONDUIT ELBOWS:

- A. Conduit elbows shall be rigid PVC Schedule 40.
- B. Shall include one integral bell end.
- C. Radius and bend shall be as specified in the Bid Form.
- D. Acceptable Manufacturers:
 - 1. Cantex.
 - 2. Or engineer approved equal.

2.04 CONDUIT COUPLINGS:

- A. Couplings shall be longline coupling with molded center stop.
- B. Shall be rigid PVC Schedule 40
- C. Acceptable Manufacturers:
 - 1. Cantex, longline coupling.
 - 2. Or engineer approved equal.

2.05 PULL TAPE:

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- A. Pull tape shall be a 1/2" pre-lubricated, woven polyester tape made from low friction, high abrasion resistant yarns.
- B. Pull Tape shall be marked with sequential footage markings.
- C. Tensile strength shall be 1,250 lbs.
- D. Acceptable manufacturers:
 - 1. Carlon.
 - 2. Or engineer approved equal.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. General:
 - 1. Install conduit in accordance with the NEC and the drawings.
 - 2. Install conduit in straight lines.
 - 3. All conduits shall be cut square and reamed to remove all rough edges and burrs. Bushings or bell ends shall be installed on the ends of conduit to protect the insulation or sheaths of the wires and cables from abrasion.
 - 4. After all cables have been installed, seal all conduit entrances with duct seal.
 - 5. All conduit and raceways shall be swabbed or blown out to remove all moisture, foreign objects, and abrasive material.
 - 6. All direct-buried conduit work is subject to inspection by the Owner and/or the Engineer.
- B. Direct-buried conduit:
 - 1. Routing of conduit shall avoid conflicts with utilities, structures, and equipment; subject to approval of the Engineer.
 - 2. The use of couplings shall be held to a minimum.
 - 3. All conduits designated for future use shall be capped at both ends at the locations shown on the drawings.

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4. The installation depth of conduit used for secondary cables shall be 24” minimum from the subgrade to the top of the conduit.
5. Openings for conduits in existing manholes or concrete slabs shall be made by using a core drill. After installing the conduit through the manhole wall or slab, the gap around the conduit shall be completely grouted and sealed.

* * * END OF SECTION * * *

PHOTOVOLTAIC SPECIFICATIONSPART 1 - PROJECT IDENTIFICATION

1.01 SCOPE

- A. Waverly Utilities is soliciting proposals from a qualified contractor to design, furnish, deliver, and install a ground mounted utility solar photovoltaic system.
- B. Contractor shall provide a turnkey project including all necessary equipment, materials, design, manufacturing and installation services for the installation of the photovoltaic system.

1.02 TECHNICAL REQUIREMENTS AND STANDARDS

- A. Installation and equipment shall comply with applicable building, mechanical, fire, seismic, structural and electrical codes. Only products that are listed, tested, identified, or labeled by UL, FM, ETL, or another Nationally Recognized Testing Laboratory shall be used as components in the project. Non listed products are only permitted for use as project components when a comparable useable listed component does not exist. Non-listed products proposed for use as components must be identified as such in all submittals.

The contractor shall use project components that are or are made of materials that are recyclable, contain recycled materials, and that are EPA or Energy Star rated if they are available on the market.

The publications listed below form a part of this document and are hereby incorporated by reference:

1. National Electrical Code (NEC)
2. UL 1703 Flat – Plate PV Modules and Panels
3. UL 1741 – Standard for Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems
4. FM Approved – Fire Protection Tests for Solar Component Products
5. IEC 62446 Grid Connected Photovoltaic Systems- Minimum Requirements for System Documentation, Commissioning Tests, and Inspections
6. ANSI Z21.83 (solar PV performance and safety)

7. NFPA 853 (solar PV systems near buildings)P:\04\196\12\Doc\Spec\33 7119.01- Conduit.docx
8. IEEE 1547 (interconnections)
9. ASCE/ SEI-7 – American Society of Civil Engineers – “Minimum Design Loads for Buildings and Other Structures”.

1.03 ROLES AND RESPONSIBILITIES.

A. The contractor is required to provide:

1. Design project design concepts.
2. Perform all construction necessary for the successful installation of the system based upon the design.
3. Construction documents and engineering calculations that are signed and sealed by a licensed engineer in the State of Iowa.
4. Submittals for materials and products
5. Construction materials, equipment and labor
6. Design and construction supervision/contract management
7. Quality control plan (QCP)
8. Safety plan
9. Inspections and tests (per QCP)
10. Manuals (design calculations, operation/maintenance, shop drawing, etc.)
11. Commissioning of project
12. Mentoring and training utility operating staff for operation and maintenance
13. Web-based monitoring system for 20 years

B. The Owner will provide:

1. Review for approval design submittals and QCP
2. Witness inspections and test witnesses to verify attainment of performance requirements

3. Make progress payments for design / construction as agreed
4. POI step up transformer
5. POI metering equipment, including meter, meter socket, CT's and PT's.

1.04 SUBMITTALS:

- A. See Section 01 0001 – General Requirements, for submittal procedures.
- B. Shop Drawings:
 1. Dimensions.
 2. Descriptive data.
 3. Performance data.
 4. Electrical schematics.
 5. Ratio correction factor and phase angle curves.
- C. The Contractor shall submit shop drawings and product data / submittals, catalog cuts, etc. as stipulated herein.

1.05 PAYMENT:

- A. Payment shall be at the Contract unit prices as shown on the Bid Form.
- B. See Standard Terms and Special Conditions, section 8 for payment description.

1.06 WARRANTY:

- A. See Section 01 0001 – General Requirements, for warranty requirements.

PART 2 - PRODUCTS

2.01 SYSTEM REQUIREMENTS

- A. The system shall have a minimum capacity of 500 kW AC. Larger capacity systems that produce more than the minimum are an alternative and will be evaluated but the proposed system shall not be larger than 700 kW AC.

- B. The contractor should prepare system summary detailing applicable equipment/size, predicted system energy production (kWh).
- C. The contractor shall perform all professional services as necessary to provide a complete design package including the requirements outlined in this document.
- D. The contractor shall install the project such that it is operational and compliant with all applicable standards, building codes, and Utility interconnection requirements.
- E. The contractor shall include specifications, calculations and drawings in the design package, and turn it over to the Utility.
- F. After approval by the Utility of the final design package, the contractor shall provide all necessary construction to successfully complete the photovoltaic system installation.

2.02 DESIGN GUIDELINES

- A. The contractor shall develop a design for a new photovoltaic system at the project location. See attached drawings indicating available areas for installation. It is the responsibility of the contractor to assess site topography and geotechnical attributes to estimate costs related to project installation.
 - 1. Mounting system shall be directly anchored into the ground (driven piles or helical piles). Mounting system design needs to meet applicable local building code requirements with respect to snow, wind, and seismic factors.
 - 2. Panel orientation or azimuth shall be within 20-30 degrees of due south.
 - 3. Panel tilt shall be based on site latitude and wind conditions.
 - 4. Ground cover and vegetation management shall be included in the proposal.
 - 5. Stormwater management and erosion control management plan shall be included in the proposal.
 - 6. All lines interconnecting the PV arrays to the point of interconnection shall be underground.

2.03 PERFORMANCE CRITERIA.

- A. The following performance criteria shall be met for all arrays:
 - 1. Power provided shall be 480V three phase compatible with the onsite distribution system. See drawings for options for connection voltage and location.

2. Proposal shall provide estimated energy delivery for each array at the utility POI, for each month of the year and total for the year at the delivered voltage (480 V).
3. The STC-rated power value will be entered into PVsyst using the Waterloo Weather Municipal Airport TMY Class I weather file to determine estimated energy delivery in kWh AC. A default value for the system losses of 14% shall be used.
4. PV array shall mean one or more PV modules having that same orientation and on the same maximum power point tracking (MPPT) system.
5. All proposed PV array locations shall be shade free from 12 PM until 2 PM (solar time) on the winter .
6. Contractor shall provide documentation of shading calculations for exterior extents for each proposed array. Suggested documentation would include sun path diagrams for exterior array locations or SunEye measurements or NOAA solar position calculator.
7. All PV hardware components shall be either stainless steel or aluminum. PV structural components shall be corrosion resistant (galvanized steel, stainless steel, composites, or aluminum).

2.04 PROPOSAL CONCEPT DRAWINGS

- A. The contractor shall provide conceptual drawings with the proposal. The drawings must indicate the proposed location of the PV arrays, number of panels, panel wattage, row spacing and layout, access points along with a one-line electrical diagram showing inverters, transformers, meters, and interconnection locations.
- B. The proposal shall include major equipment information, proposed installation/interconnection information, and performance characteristics of the system.
- C. Identify an appropriate location for the solar PV inverter equipment and its related components and environmental control systems that will meet the following criteria:
 1. Ease of maintenance and monitoring.
 2. Efficient operation
 3. Low operating losses

4. Secured location and hardware
5. Compatibility with existing facilities.
6. Avoidance of flood-prone areas.

D. At a minimum, the proposed concept information shall include:

1. Equipment Information:
 - a. System description
 - b. Layout of installation
 - c. Selection of key equipment and layout of equipment
 - d. Performance of equipment components, and subsystems
 - e. Specifications for equipment procurement and installation
 - f. All engineering associated with structural and mounting details
 - g. Controls, monitors, and instrumentation
 - h. Operation and maintenance service plan
2. Installation Interconnection Information:
 - a. Solar electric array orientation (degrees)
 - b. Solar electric module tilt (degrees)
 - c. Electrical grid interconnection requirements
 - d. System type and mode of operation
3. Performance Characteristics
 - a. Shading calculation documentation
 - b. Total system output
 - c. Estimated kWh/month per array shown over a 12-month period at the POI.

2.05 DESIGN SERVICES

- A. PV system shall be designed and engineered to maximize the solar energy resources, taking into consideration the proposed installation site, available solar resources, existing site conditions, proposed future site improvements, and other relevant factors.
- B. Design Services for this project shall require a schematic design submission, a design development submission, a check set submission and a construction document submission.
- C. Contractor is required to provide an estimate on project timeline and schedule.
- D. Within 21 calendar days after receipt of the contract award a design meeting shall be scheduled with the Owner.
- E. The specifications package shall be coherent enough that any contractor not familiar with the project would be able to construct the project design. The specifications shall include all equipment information, proposed installation and interconnection information, and performance characteristics of the system.
- F. All drawings, estimates, calculations, and specifications shall be in English units.
- G. The contract shall take into account a construction plan producing a minimum disruption of day-to-day activities, utilities, services, etc.
- H. Construction Drawings
 - 1. Provide drawings for each discipline required (structural, electrical, etc.).
 - 2. Each drawing shall indicate project title, project number, array identification and location, firm name, address and/or phone number, contract number, drawing title, drawing type, drawing number, and key plan.
 - 3. A cover sheet shall be provided and shall include a list of the drawings, legend, vicinity map, and location map in addition to all items required for each drawing.
 - 4. Each submission shall be clearly dated and labeled (e.g. 75% Design Development Submission, 100% Check Set Submission, Construction Document Submission, As-Built Drawings, etc.).
 - 5. The final set shall be stamped by a registered engineer in the State of Iowa. At a minimum, the following drawings are required:

- a. Site plan including utility locations and connections – shall show staging and phasing requirements.
 - b. Electrical plans – including single line diagram and utility interconnection.
 - c. Electrical details.
 - d. Array support and mounting details.
- I. The contractor will provide the following calculations with design development and again with 100% check set
- 1. PVSyst calculation
 - 2. System energy production calculation showing estimated monthly and yearly energy output for each array
 - 3. Energy performance calculated by a detailed PV analysis program PVSyst using proposed specific PV modules and inverters.
- J. Each final drawing and each submitted specification and calculation document shall be signed by, bear the seal of, and show the state certificate number of the engineer who prepared the document and is responsible for its preparation.

2.06 UTILITY INTERCONNECTION

- A. The contractor shall coordinate with the Utility to ensure that the project satisfies all Utility criteria for interconnection of the project to the Utility electric distribution system.
- B. The contractor shall manage interconnection and startup of project in coordination with the Utility.

2.07 PV MODULE ARRAY

- A. Photovoltaic (PV) modules shall be a commercial off-the-shelf product. UL listed and shall be on the California Senate Bill 1 (SB1) compliant List of Eligible SB1 Photovoltaic Modules.
- B. PV module technologies that the Bidder may use include crystalline and thin film type.
- C. The PV modules shall be installed such that the maximum amount of sunlight available year-round on a daily basis should not be obstructed.

- D. All projects must include documentation of the impact from any obstruction on the seasonal or annual performance of the solar electric array.
- E. Crystalline PV modules should have at least 72 cells with a capacity of 300 Wp. If proposing thin film, PV modules shall have a minimum capacity of 100 Wp.
- F. PV modules shall have a 10-year limited product warranty and a 25-year linear power warranty that modules will generate no less than 80% of rated output under STC. PV modules that do not satisfy this warranty condition shall be replaced.
- G. Provide 1% extra PV panels.
- H. Acceptable Manufacturers:
 - 1. Caterpillar
 - 2. Canadian Solar
 - 3. First Solar
 - 4. Longi Solar
 - 5. Solar World
 - 6. Or approved equal.

2.08 INVERTER AND CONTROLS

- A. String inverters shall be utilized in the design. Each inverter and associated controls shall be properly installed according to manufacturer's instructions.
- B. Inverters shall be commercial off-the-shelf product. UL 1741 and IEEE 1547 compliant, and shall be on the California Senate Bill 1 (SB1) compliant List of Eligible Inverters per SB1 guidelines.
- C. The inverter shall have at a minimum the following features:
 - 1. UL 1741 listed
 - 2. IEEE 1547 compliant
 - 3. Listed on California Senate Bill 1 (SB1)
 - 4. Peak efficiency of 98% or higher

5. Integrated DC Disconnect
 6. Inverter shall have operational indicators of performance and have built-in data acquisition and remote monitoring.
 7. The inverter shall not contain any transformers.
 8. The inverter shall be capable of parallel operation with the existing AC power.
 9. Each inverter shall automatically synchronize its output waveform with that of the utility upon restoration of utility power.
 10. Warning labels shall be posted on the control panels and junction boxes indicating that the circuits are energized by an alternate power source independent of utility-provided power.
- D. Operating instructions shall be posted on or near the system, and on file with facilities operation and maintenance documents.
- E. Power provided shall be compatible with onsite electric distribution systems.
- F. Inverters shall be shaded from direct sun from 10 a.m. to 6 p.m. in the months of June to August and be able to be securely locked.
- G. Acceptable Manufacturers:
1. Chint Power Systems
 2. SMA
 3. Yaskawa Solectria
 4. Or approved equal.

2.09 CONTROL PANEL TO SOLAR ELECTRIC ARRAY WIRING

- A. All wiring between arrays and the point of interconnection shall be underground and installed in conduit.
- B. PV Panel interconnect DC cable shall be copper type RHW-2 cable, or approved equal with XLPE jacket capable of meeting DC collection system design current requirements.
- C. Cables shall be listed and identified as PV wire.

- D. All field electrical devices shall have the capability to be locked as appropriate.

2.10 PV MONITORING

- A. The PV systems installed shall provide for monitoring by the Utility on a vendor provided website
- B. Monitor by an IP addressable device and displayed graphically in a user-friendly manner the following parameters:
 - 1. AC energy
 - 2. Solar irradiance
 - 3. Show status of all equipment
 - 4. Provide electrical one line showing operation and performance of all equipment
- C. Data shall be available both in real time and in archived in 15-minute averages. All monitoring hardware and monitoring equipment shall be provided by the contractor.
- D. System shall also include metering for remote data collection and display on vendor-provided web site of system performance. System performance shall allow display during different monitoring periods from one hour to one year.
- E. Provide networking equipment, engineering, programming, wiring, and software to allow remote connection to the local area network.

2.11 STRUCTURAL REQUIREMENTS

- A. All structures, including array structures, shall be designed in accordance with all applicable state and local codes and standards.
- B. The contractor shall provide structural calculations, stamped by a licensed professional structural engineer licensed in the State of Iowa.
- C. All structural components shall be non-corrosive (galvanized steel, stainless steel or aluminum). All hardware shall be stainless steel or aluminum. All components shall be designed to obtain a minimum 40-year design life.
- D. Provide surge protection on all electrical systems.

2.12 MOUNTING SYSTEM

- A. Ground mounted system shall be fixed tilt.
- B. Systems shall be UL 2703 compliant.
- C. Minimum design criteria per most recent ASCE 7:
 - 1. Wind Speed – 90 MPH
 - 2. Ground snow load – 35 PSF
 - 3. Ice Thickness – 0.5 inch
 - 4. Ice Load Wind Speed – 4 PSF
 - 5. Seismic per IBC.
- D. Steel piles or helical piles shall be designed in accordance with the design criteria and soil conditions as reported in the geotechnical report.
- E. Acceptable Manufacturers:
 - 1. AP Alternatives
 - 2. Unirac.
 - 3. Or approved equal.

2.13 PERFORMANCE ESTIMATE PARAMETERS

- A. Bidders should perform a component-based analysis, using information and inputs from the proposed PV hardware. The analysis should be performed using the Waterloo Municipal AP TMY 3 Class I weather center of closest proximity to the project site.

2.14 OPERATIONS AND MAINTENANCE SERVICE

- 3 Provide an alternate price for operation and maintenance of the solar array systems for one year.
- 4 Work shall include all manufacturer recommended maintenance as well as a 12-month performance commissioning.
- 5 The Utility shall be invited to witness all performance commissioning's.
- 6 A maintenance log shall be maintained to note dates, equipment and issues being resolved.
- 7 Contractor should be available within 48 hours to respond to natural disasters (extreme storm, hail, wind events) to inspect array for damage.

PART 3 - EXECUTION

- 3.01 The PV modules shall be installed such that the maximum amount of sunlight available year-round on a daily basis should not be obstructed.
- 3.02 System wiring shall be installed in accordance with the provisions of the NEC.
- 3.03 All modules installed in a series string shall be installed in the same plane/orientation.
- 3.04 Panel installation design shall allow for the best ventilation possible of panels to avoid adverse performance impacts.
- 3.05 Install inverters and control panels in most optimum locations with appropriate environmental protection.

*** END OF SECTION ***

CATEGORY IV

Technical Data

- **GEOTECHNICAL ENGINEERING REPORT BY TERRACON CONSULTANTS, INC DATED NOVEMBER 9, 2017
(This data is presented for informational purposes only and is not part of the Contract Document.)**

Terracon *GeoReport*

Geotechnical Engineering Report

Waverly Utilities Solar Project

Waverly, Iowa

November 9, 2017

Terracon Project No. 13175123

Prepared for:

Waverly Utilities

Waverly, Iowa

Prepared by:

Terracon Consultants, Inc.

Cedar Falls, Iowa

terracon.com

Terracon

Environmental



Facilities



Geotechnical



Materials

November 9, 2017



Waverly Utilities
1002 Adams Parkway
Waverly, Iowa 50677

Attn: Mr. Mike Litterer, COO – Director of Operations
P: (319) 559 2000
E: mlitterer@waverlyutilities.com


Re: Geotechnical Engineering Report
Waverly Utilities Solar Project
8th Street SW
Waverly, Iowa
Terracon Project No. 13175123

Dear Mr. Litterer:

Terracon Consultants, Inc. (Terracon) has performed geotechnical engineering services for the proposed Waverly Solar Power Facility to be located in Waverly, Iowa. These services were performed in general accordance with our Proposal No. P13175123, dated October 2, 2017. This report presents the results of the subsurface exploration and provides geotechnical engineering recommendations for earthwork and the design and construction of the foundations for the planned solar facility.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.


Theresa M. Stromberg-Murphy, P.E.
Senior Engineer



Jason P. Heinz, P.E.
Geotechnical Department Manager

Reviewed by: Thomas R. Bartlett, P.E. (NC)

REPORT TOPICS

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Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the

 logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

SITE LOCATION AND EXPLORATION PLANS

EXPLORATION RESULTS (Boring Logs and Laboratory Data)

SUPPORTING INFORMATION (General Notes and Unified Soil Classification System)

Geotechnical Engineering Report

Waverly Utilities Solar Project

8th Street SW

Waverly, Iowa

Terracon Project No. 13175123

November 9, 2017

INTRODUCTION

This report presents the results of our subsurface exploration and geotechnical engineering services performed for the proposed photovoltaic (PV) panel installations to be located at the Waverly Utilities Solar Project near 8th Street SW in Waverly, Iowa. The purpose of our services is to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Foundation design and construction
- Slab design and construction
- Seismic site classification

Six soil borings, designated Nos. 1 through 6, were advanced to depths of approximately 20½ feet below existing grades.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs in the **Exploration Results** section of this report.

SITE CONDITIONS

Item	Description
Parcel Information	<ul style="list-style-type: none">■ The project site is located west of 8th Street SW in Waverly, Iowa.■ The site is approximately 3½ acres.■ Latitude 42° 42' 31.27" Longitude: -92°, 28' 57.52" (approximate)
Existing Improvements	Undeveloped
Current Ground Cover	Grass lot
Existing Topography	A topographic site plan was not provided. Based on the boring elevations, the site slopes downward to the east. A maximum elevation difference of 4 feet was measured at the boring locations.

PROJECT DESCRIPTION

Item	Description
Information Provided	A site drawing detailing requested boring locations was provided electronically by Mr. Mike Litterer with Waverly Utilities on September 26, 2017.
Project Description	<ul style="list-style-type: none"> ■ Solar photovoltaic arrays mounted to a single-axis tracker racking system. ■ Equipment pads are anticipated to consist of slab-on-grade or reinforced mat type foundations
Maximum Racking System “Top-of-Pile” Ultimate Loads	<p>The following loads were assumed for the photovoltaic racks.</p> <ul style="list-style-type: none"> ■ Downward: 3.5 kips ■ Uplift: 1.5 kips ■ Lateral: 1.5 kips
Grading	We anticipate solar arrays will follow existing grades.

GEOTECHNICAL OVERVIEW

The non-organic, low plasticity, on-site soils lean clays are considered suitable for use as fill in the facility area. Due to higher moisture contents of the near surface soils, moisture conditioning (i.e. drying) should be expected to achieve compaction requirements. Refer to the **Earthwork** section of the report for additional information.

Lower strength soils (i.e., soft to medium stiff soils) were encountered in the borings to depths of about 11½ feet below existing grades. The presence of these soils will affect earthwork and foundation design and construction.

Provided the recommendations of this report are implemented during design and construction, ancillary equipment can be supported on shallow foundations, and the proposed solar arrays can be supported on driven steel posts or drilled shafts extended into the stiff or very stiff, sandy lean clay deposits. Alternatively, the photovoltaic panels can be supported on ballasted foundations or on helical pier foundations. Refer to the **Photovoltaic Panel Foundations** and **Ancillary Equipment Foundations** sections for recommendations.

The **General Comments** section provides a description of the limitations of this report.

EARTHWORK

Site Preparation

In preparing the site for construction, deleterious materials such as vegetation, organic soil, and/or very loose, soft, frozen or otherwise unsuitable materials should be removed from the site. High plasticity topsoil thicknesses of up to three feet were encountered in the borings. To remove the surficial organic portions of the topsoil, stripping depths of 1 to 2 feet are anticipated. Plowing of the soils for agricultural purposes and erosion could have also created variable topsoil thicknesses in other areas. Therefore, the actual stripping depths should be expected to vary for this project and should be evaluated by Terracon personnel during construction. Organic material should be disposed of off-site or stockpiled for later use in landscaped areas. Care should be taken so the underlying soil is not disturbed during construction.

After stripping and prior to placing fill or concrete, subgrades should be observed and evaluated by Terracon. Subgrade evaluations should include the following, where applicable, to identify low strength/density, loose/disturbed, unstable, and unsuitable subgrade areas.

- Observation and visual classification of subbase and/or subgrade materials
- Probing and sampling for laboratory testing including:
 - moisture content
 - organic content
 - plastic and liquid limits
 - moisture-density relationships
- Testing in-place moisture and density of subgrades
- Performing strength and/or cone penetration tests
- Observation of subgrade performance when proofrolled

Relatively high moisture surface soils (generally 28 to 30% in the borings) will probably not support construction equipment without rutting and/or pumping. In areas where design subgrade elevations are planned to be within about 2 feet of the existing grades, the removal of about 1 to 1.5 feet of lower strength and high moisture content soils should be anticipated unless granular fill is used. In areas where more than 2 feet of new fill is to be placed following site stripping, we anticipate that a relatively stable subgrade can be achieved by scarification, moisture conditioning, and compaction, using granular fill, or chemical stabilization, prior to the placement of fine-grained fill.

Where unstable or unsuitable subgrades are encountered after stripping, methods of subgrade improvement that can be considered include scarification, moisture conditioning, and compaction, removal of unstable materials and replacement with granular fill (with or without geosynthetics), or chemical modification. The appropriate method of improvement, if required, would depend on factors such as schedule, weather, the size of the area and soil type to be improved, and the

nature of the instability. More detailed recommendations can be provided during construction as the need for subgrade improvement occurs. Pre-draining the site in advance of earthwork and performing site grading operations during warm seasons and dry periods would help reduce the amount of subgrade improvement required.

- **Scarification, Moisture Conditioning, and Compaction** - It may be feasible to scarify, moisture condition (e.g. dry), and compact the exposed soils. This method of subgrade preparation should be considered in areas where generally suitable soils are present, but the strength and uniformity of the material type and moisture condition would be improved by scarification, moisture conditioning, and compaction. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Even with adequate time and favorable weather, stable subgrades may not be achieved if the thickness of the unstable material is greater than about 1 to 1½ feet.

- **Crushed Stone/Aggregate** - The use of crushed stone, crushed concrete, and/or gravel could be considered to improve subgrade stability. The use of a geotextile or geogrid could also be considered after underground work, such as utility construction, is completed. Construction equipment should not be operated above the fabric or geogrid until one full lift of crushed stone fill is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid generally should not exceed 1½ inches. Granular gradation requirements provided by the geosynthetic product manufacturer should be verified prior to material purchase and delivery to the site.

- **Chemical Modification/Stabilization** – Subgrades consisting of fine-grained soils can generally be improved with portland cement, Class C fly ash, or lime kiln dust to improve subgrade support. Chemical modification of sand subgrades is not anticipated to develop satisfactory results and should not be used in areas of sand soils. Chemical modification should be performed by a pre-qualified contractor having experience with successfully constructing subgrades in the project area on similar sized projects with similar soil conditions. Results of chemical analysis of the additive materials should be provided to the geotechnical engineer prior to use. The hazards of chemicals blowing across the site or onto adjacent property should also be considered. Additional testing would be needed for us to develop specific recommendations to improve subgrade stability by blending chemicals with the site soils. This testing could include, but not be limited to, determining the most suitable stabilizing agent, the optimum amounts required, the potential for sulfate induced heave, shrink/swell potential, and freeze-thaw durability of the subgrade.

Fill Material Types

Each proposed fill material type should be tested and evaluated by Terracon prior to its delivery and/or use. Appropriate laboratory tests, including Atterberg limits for fine-grained soils, organic

Geotechnical Engineering Report

Waverly Utilities Solar Project ■ Waverly, Iowa
November 9, 2017 ■ Terracon Project No. 13175123



content tests for dark colored soils and/or those that exhibit a noticeable odor, sieve analysis, and standard 'Proctor' (ASTM D698) tests, should be performed on proposed fill materials. Fill placed in the facility area should meet the following material property requirements.

Fill Type ¹	USCS Classification	Acceptable Location for Placement
On-site soil ²	CL (LL ≤ 45 and PI ≤ 23)	■ Photovoltaic rack areas ■ Spread footing foundation areas
Imported low plasticity cohesive ²	CL (LL ≤ 45 and PI ≤ 23)	■ Photovoltaic rack areas ■ Spread footing foundation areas
Imported granular ³	GW, GP, SW, SP	■ Photovoltaic rack areas ■ Spread footing foundation areas

1. Fill placed in rack and spread footing areas should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Terracon for evaluation prior to use on this site.
2. By our definition, low plasticity soil/material has a liquid limit (LL) of 45 or less and a plasticity index of 23 or less. Fine grained soils can be difficult to compact in relatively small areas (e.g., excavations for foundations or utilities) and over marginally stable subgrades. Moisture conditioning (e.g., wetting or drying) would be necessary to achieve compaction requirements if fine grained material is used as fill in structure areas for this project.
3. Specific material requirements will need to be satisfied based on the intended use.

Fill Compaction Requirements

Fill placed in PV rack and other structure foundation areas should be placed and compacted in accordance with the following requirements.

Item	Description
Maximum fill lift thickness	■ 9 inches s in loose thickness when heavy, self-propelled compaction equipment is used ■ 4 inches in loose thickness when hand equipment (e.g., jumping jack, vibratory plate compactor, etc.) is used
Minimum compaction requirement ^{1, 2, 3}	■ Cohesive material: 95 percent ■ Granular material: 98 percent
Moisture content range from optimum moisture content ^{3, 4}	■ Generally -3 to +3 percent

-
1. Compaction values and moisture contents are relative to standard 'Proctor' maximum dry density and optimum moisture content (ASTM D 698).
 2. We recommend that each lift of fill be tested for moisture content and compaction during grading, foundation construction, and pavement construction. If the results of the in-place density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified moisture and compaction requirements are achieved.
 3. If the granular material is a coarse sand or gravel, is of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70 percent relative density (ASTM D 4253 and D 4254). Actual compaction requirements for coarse, uniform, or low fines content granular material should be based on laboratory test results.
 4. The gradation of a granular material affects its stability and the moisture content required for proper compaction. Specifically, the moisture content of granular material should be maintained at a level to achieve compaction without the granular material bulking during placement or pumping when proofrolled.
-

Utility Trench Backfill

Trench excavations should be made with sufficient working space to permit construction including backfill placement and compaction. As trenches can provide a conduit for groundwater flow, trenches should be backfilled with material that approximately matches the permeability characteristics of the surrounding soil. Should higher permeability fill be used in trenches, consideration should be given to installing clay plugs to reduce the likelihood of water migration through the trenches.

Grading and Drainage

Adequate drainage should be provided on the site to reduce the impact of water on foundation subgrades. Excessive moisture can significantly reduce subgrade support capability and contribute to soft subgrades and settlement. Exposed subgrades should be properly sloped during construction to promote drainage of surface water. However, the soil types observed in the borings are easily eroded by surface water, so appropriate erosion control measures should be provided. Water that accumulates on subgrades should be removed as soon as possible.

Water permitted to pond next to structures can result in greater soil movements than those discussed in this report. These greater movements can result in unacceptable differential foundation movements. Estimated movements described in this report are based on effective drainage for the life of the structures and cannot be relied upon if effective drainage is not maintained.

Earthwork Construction Considerations

Predominately cohesive soils with seams and layers of sand with varying amounts of fines are anticipated at the site. These soil types will be susceptible to disturbance from construction activity and should be considered as frost-susceptible. Construction traffic over subgrades should be avoided to the extent practical. The use of remote-operated construction equipment should be considered to limit subgrade disturbance. Weather conditions such as freezing, thawing, rain, or dry weather can also contribute to subgrade disturbance. If the subgrade becomes saturated, desiccated, or disturbed, the affected material should be removed, or scarified, moisture conditioned, and compacted prior to further fill placement or foundation construction. If a significant period of time elapses between site grading and further construction, the subgrade should be reworked and/or retested prior to the placement of additional fill or foundations. Care should be taken to maintain the subgrade moisture content upon completion of grading.

As a minimum, temporary excavations should be sloped or braced, as required by Occupational Safety and Health Administration (OSHA) regulations, to provide stability and safe working conditions. The contractor, by their contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations, as required, to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, State, and federal safety regulations, including the current OSHA Excavation and Trench Safety Standards.

Terracon should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during site preparation, placement and compaction of fill, backfilling of excavations, and prior to construction of foundations.

PHOTOVOLTAIC PANEL FOUNDATIONS

We recommend that the proposed photovoltaic panel racking system be supported with driven steel post or drilled shaft foundations bearing within native, medium stiff to stiff or very stiff, sandy lean clay. Driven steel posts or drilled shaft foundations should extend through soft clay deposits, such as those encountered in Borings 1 and 5. The photovoltaic panel racking system may also be supported on ballasted foundations at the ground surface if movement due to frost action is not an issue, or on helical pier foundations. Design recommendations and construction considerations for the recommended foundation systems are presented in the following sections.

Driven Post Design Parameters

Photovoltaic panels may be supported on driven steel posts structurally designed to resist vertical, uplift, and bending forces. The soils on the site are frost susceptible. Frozen soils can exert a heaving force on the posts. If the anchorage of the foundations and the deadweight of the

Geotechnical Engineering Report

Waverly Utilities Solar Project ■ Waverly, Iowa
November 9, 2017 ■ Terracon Project No. 13175123



structures are not sufficient to resist these forces, they can cause uplift to structures. Specifically, posts should be driven below the frost depth of 4 feet and the lengths will need to be long enough to counteract potential heave forces in the seasonal frost zone. The presence of soft to medium stiff soils to depths of about 11½ feet will require that driven post lengths be greater than 11 feet in length to achieve resistances to uplift and bending forces.

Driving resistance should be correlated to vertical load capacity, based on the equipment used to install the posts. A minimum factor of safety of 2 should be applied to the vertical load capacity. Full-scale pull-out testing should be performed on selected posts to determine uplift capacity. A minimum factor of safety of 1.5 should be applied to the uplift capacity. Full-scale lateral load testing should also be performed. The required lateral capacity should be mobilized with less than ½-inch of movement at ground level. Corrosion protection should be provided for steel posts/piles. Lateral deflections of piles should be evaluated using an appropriate analysis method, and will depend upon the actual subsurface soil profiles, the pile's diameter/width, length, configuration, stiffness and "fixed head" or "free head" condition. We can provide additional analyses and estimates of lateral deflections if structural loads and proposed pile types are provided. The geotechnical parameters in the following table can be used for evaluation of driven post foundations.

Ultimate Axial and Lateral Geotechnical Parameters for Driven, Non-Displacement, Steel Posts/Piles					
Stratum	New Fill	1	2	3	4
USCS / Boring Log Description	New Fill	Sandy Lean Clay, Soft	Sandy Lean Clay or Silt, Medium Stiff	Sandy Lean Clay, Stiff	Sandy Lean Clay, Very Stiff to Hard
Axial Side Resistance ^{1,2} (psf)	Neglect	150	600	800	1,200
End Bearing Resistance ¹ (psf)	n/a	neglect	neglect	6,250	10,000
Frost Heave Stress ³ (psf)	1,000	1,500	1,000	n/a	n/a
LPile Soil Type	Stiff Clay w/out free water (Reese)	Soft Clay (Matlock)	Stiff Clay w/out free water (Reese)	Stiff Clay w/out free water (Reese)	Stiff Clay w/out free water (Reese)
Total Unit Weight ⁴ (pcf)	120	125	125	135	135
Undrained Shear Strength, c _u (psf)	1,250	350	750	1,500	3,000

Ultimate Axial and Lateral Geotechnical Parameters for Driven, Non-Displacement, Steel Posts/Piles					
Stratum	New Fill	1	2	3	4
Angle of Internal Friction (degrees)	0	0	0	0	0
Lateral Soil Modulus ² , k (pci)	350	40	100	500	1,000
ϵ_{50} (strain, in./in.)	0.006	0.02	0.010	0.007	0.005

1. A factor of safety of at least 2 should be applied to the ultimate side resistance values, and a factor of safety of at least 2.5 should be applied to the ultimate end bearing resistance values.
2. The axial side resistance of the soil in the frost zone should be neglected due to the effects of desiccation. The lateral resistance of the soil in the upper 2 feet is considered to be reduced (in some cases entirely ignored) due to the potential effects of freezing and thawing and desiccation.
3. Tangential heave stress was estimated from Nidowicz and Shur, "Russian and North American Approaches to Pile Design in Relation to Frost Action", Proceedings from Seventh International Conference on Permafrost, 1998.
4. The effective unit weights of soil should be used below the design groundwater elevations.

Driven Post Construction Considerations

The steel posts should be driven vertically. Driving should be monitored to determine if obstructions are encountered. Damaged posts should be replaced. The exploration generally did not encounter material that would obstruct driven steel posts. However, occasional zones of gravel, cobbles, and boulders can be present within the glacial clay soils. If obstructions are encountered, pre-augering or pre-drilling holes for the posts would be required to facilitate driving.

Drilled Shaft Design Parameters

Description	Value
Net Allowable Bearing Capacity ¹	Soft to Medium Stiff, Sandy Lean Clay: neglect
	Stiff, Sandy Lean Clay: 2.5 ksf
	Very Stiff to Hard, Sandy Lean Clay: 5.5 ksf
Ultimate Side Resistance ²	Soft to Medium Stiff Sandy Lean Clay: 0.2 ksf
	Stiff, Sandy Lean Clay: 0.7 ksf
	Very Stiff to Hard, Sandy Lean Clay: 1.6 ksf

Description	Value
Coefficient of Lateral Subgrade Reaction ³	20 (z/D) kcf
Angle of Internal Friction	Soft to Medium Stiff Clay: 24 degrees
	Stiff, Sandy Lean Clay: 26 degrees
	Very Stiff, Sandy Lean Clay: 28 degrees
Estimated In-situ Soil Unit Weight	Soft to Medium Stiff, Sandy Lean Clay: 125 pcf
	Stiff to Very Stiff, Sandy Lean Clay: 135 pcf
Approximate Groundwater Depth (refer to Boring Logs)	7 to 17 feet
Concrete minimum 28-day unconfined compressive strength ⁴	4,000 psi
Minimum drilled shaft diameter	18 inches
Allowable deflection at top of shaft	0.5 inch

1. The net allowable end bearing capacity is based on the shaft being terminated at least one shaft diameter into the soil layer (with a minimum embedment of 10 feet). The allowable end bearing capacity assumes that loose or disturbed material at the base of the shaft is removed and the shafts being extended below soft to medium stiff soil.
2. Contribution to vertical shaft capacity from soils within the upper 4 feet should be ignored. The uplift capacity of the shaft will be based on side resistance and the dead weight of the shaft.
3. z is depth below the ground surface and D is diameter of shaft, both in feet.
4. Air entraining admixtures should be used for concrete exposed to freezing.

The base of drilled shafts should be within stiff or very stiff to hard lean clay, which was encountered about 6.5 to 10.5 feet below existing grades. The drilled shafts will be designed to resist tension loads, and therefore should have reinforcing steel installed throughout the entire length of the shaft. Technical specifications should be prepared that require material and installation detail submittals, proof of experience in drilled shaft installation, concrete placement methods, and the use and removal of temporary steel casing.

Drilled Shaft Construction Considerations

Drilled shafts should be aligned vertically. The drilling method or combination of methods selected by the contractor should be submitted for review by the geotechnical engineer, prior to mobilization of drilling equipment. A section of temporary casing should be expected to be required to prevent caving near the ground surface. Concrete should be placed by directing the concrete down the center of the shaft in order to reduce the likelihood of hitting the reinforcing steel and segregation. Groundwater, if encountered, should be removed prior to placing concrete.

Helical Pier Foundations

Helical pier or screw pile foundations, which are capable of providing vertical support and resistance to uplift forces exerted on foundations from frost, may also be considered. This system generally consists of one or more helices welded to a steel shaft. The shaft is typically 4.5-inch to 5.5-inch outer diameter, 0.24-inch to 0.31-inch wall thickness, Grade 40 to 50 steel or about 2 to 3 inch square solid steel. The helices are typically 10 to 14 inches in diameter, ½-inch thick and have a 3-inch pitch. When multiple helices are used, the one closest to the tip has the smallest diameter and each successive helix is larger than the one below. The center to center spacing between the helical anchors should be at least three helix diameters (of the largest helix) apart. The uppermost helix of the pier should bear at a depth equal to at least five times the helix diameter or deeper, and should penetrate into the native soils.

Design and installation of the helical piers are performed by specialty contractors based on the type and size of helical piers available as well as the spacing between the helices of a helical pier. The actual depth of embedment of the helical pier may vary due to variations in subsurface conditions and actual soil bearing conditions at the individual pier locations.

Field observation to evaluate bearing capacity should include an installation torque-to-capacity ratio or a minimum design installation torque value, in suitable native soils to simplify field installation quality control. We anticipate that the required capacity for helical piers supporting the anticipated structural loads can be achieved by bearing within the native stiff to very stiff clays.

Based on the anticipated structural loads and subsurface conditions described herein, post-construction settlement of helical piers that bear within suitable soils should be no more than 1 inch, but subject to design by others. Differential settlement can typically be on the order of ½ of the total settlement.

Ballasted Foundation Design Recommendations

In our opinion, if movement due to frost action is not an issue, photovoltaic panels may be supported with precast ballasted foundations placed on the native clay or on a leveling course of crushed stone. In areas beneath proposed ballasted foundations, fill should be compacted in accordance with the **Earthwork** section, over a subgrade evaluated by Terracon personnel. The native, medium stiff to stiff clay, prepared as described in the **Ancillary Equipment Foundations** section, should be capable of supporting the imposed loads.

ANCILLARY EQUIPMENT FOUNDATIONS

Lightly-loaded ancillary equipment may be supported on equipment pads underlain by at least a 12-inch thickness of granular fill placed over properly compacted clay fill and/or suitable, medium stiff to stiff, native soil. Design recommendations and construction considerations for the recommended ancillary equipment foundations are presented in the following sections.

Equipment Pad Design Recommendations

Description	Value
Net allowable bearing pressure ¹	1,500 psf
Modulus of subgrade reaction	125 psi/in for point loading
Minimum embedment below finished grade for frost protection ^{2,3}	60 inches
Approximate total settlement ⁴	1 inch
Estimated differential settlement ⁴	½ inch
Coefficient of sliding friction ^{5,6}	0.4 (ultimate)
Portland Cement Concrete ⁷	Blended Type I/II

1. Applicable to equipment pads 8 foot by 8 foot or less.
2. Consideration should be given to using dense insulation boards (Dow Styrofoam Highload, or similar) under and adjacent to lightly-loaded slabs extending a minimum of 2 feet beyond the equipment pad perimeter, to provide the equivalent of 60 inches of earth cover, thus reducing frost penetration
3. An air entraining admixture should be used for concrete exposed to freezing.
4. Settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the thickness of compacted fill, and the quality of the earthwork and foundation construction.
5. A factor of safety of at least 1.5 should be applied to the sliding resistance.
6. If rigid insulation is used beneath the equipment pad for frost protection, the coefficient of sliding friction between the concrete and the insulation should be based on the manufacturer's recommendation.
7. Minimum 28-day compressive strength of 4,000 psi.

Equipment Pad Construction Considerations

On most sites, the site grading is generally accomplished early in the construction phase. However as construction proceeds, the subgrade may be disturbed by foundation excavations, construction traffic, rainfall, etc. As a result, the subgrade may not be suitable for placement of the granular support layer, and corrective action will be required.

We recommend the area underlying the equipment pads be rough graded and then proof-rolled avoiding utility conduits, with a heavy roller compactor without vibration prior to final grading and placement of the granular support layer. Particular attention should be paid to high traffic areas that were rutted and disturbed earlier and to areas previously filled or backfilled. Areas where unsuitable or unstable conditions are located should be repaired by removing and replacing the affected material with properly compacted granular fill, as necessary.

SEISMIC CONSIDERATIONS

Description	Value
Site Class – 2012 International Building Code ¹	D ²
S ₁ – 1.0 second spectral response acceleration	0.041g ^{3,4}
S _s – 0.2 second spectral response acceleration	0.058g ^{3,4}
Liquefaction potential in the event of an earthquake	Not susceptible

1. In general accordance with the *2012 International Building Code* (which refers to *ASCE 7*), is based on the characteristics of the upper 100 feet of the subsurface profile.
2. The IBC site classification is based on average properties of the subsurface profile to a depth of 100 feet. The maximum boring depth was about 20 feet. Our opinion of the seismic site classification considers that similar subsurface conditions continue below the maximum depth of the subsurface exploration.
3. These values were obtained using online seismic design maps and tools provided by the USGS (<http://earthquake.usgs.gov/hazards/designmaps>) on November 3, 2017.
4. The S₁ and S_s values are for Site Class B, and should be adjusted with applicable Site Class D site coefficients listed in Tables 1613.3.3(1) and 1613.3.3(2) of the IBC.

SOIL CHEMISTRY AND CORROSIVITY

The table below lists the results of laboratory soluble sulfate, sulfides, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary						
Boring	Sample Depth (feet)	Sulfides (mg/kg)	Soluble Sulfate (mg/kg)	Soluble Chloride (mg/kg)	Electrical Resistivity (Ω -cm)	pH
1	90 – 10.5	Nil	68	100	2449	8.08
6	6.5 – 8.0	Nil	67	50	3201	8.02

GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications, so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction, and other earth-related construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the explorations performed at the indicated locations and from other information discussed in this report. This report does not reflect variations that may occur between explorations, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials, or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

Geotechnical Engineering Report

Waverly Utilities Solar Project ■ Waverly, Iowa

November 9, 2017 ■ Terracon Project No. 13175123



A circular professional engineer seal for the State of Iowa. The outer ring contains the text "LICENSED PROFESSIONAL ENGINEER" at the top and "IOWA" at the bottom, separated by two stars. The center of the seal contains the name "THERESA STROMBERG-MURPHY" and the license number "16934".	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <hr/> <p>Theresa Stromberg-Murphy, P.E. 11/9/2017</p> <p>My license renewal date is December 31, 2017.</p>
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ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Field Exploration

Boring Number	Boring Depth (feet)	Location (Lat/Long)
1	20½	42.708°/-92.4822°
2	20½	42.708°/-92.4829°
3	20½	42.7083°/-92.4826°
4	20½	42.7083°/-92.4826°
5	20½	42.709°/-92.483°
6	20½	42.7092°/-92.4823°

Boring Layout and Elevations: The boring locations were provided by the client on a site drawing. The approximate exploration locations were established in the field with a handheld GPS generally accurate to within 20 feet. The boring surface elevations were obtained by Terracon personnel using a surveyor's level and rod. The ground surface elevations indicated on the logs are approximate and have been rounded to the nearest ½ foot. The ground elevations at the boring locations were referenced the manhole rim on 8th Street SW at the dead end east of the site entrance. An elevation of 100 feet was assigned this reference. The locations and elevations of the borings should be considered accurate only to the degree implied by the method used to define them.

Subsurface Exploration Procedures: The borings were drilled with a truck-mounted rotary drill rig using continuous flight hollow-stem augers to advance the boreholes. Soil samples were obtained using split-barrel sampling procedures. In this procedure, a standard 2-inch (outside diameter) split-barrel sampling spoon is driven into the ground with a 140-pound hammer falling a distance of 30 inches. A CME automatic hammer was used for this project. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the standard penetration resistance value (N). These "N" values are indicated on the boring logs at the depths of occurrence. The samples were sealed and transported to the laboratory for testing and classification. Bulk samples were also collected for additional testing. Borings were backfilled as noted on the borings logs.

The samples were tagged for identification, sealed, and transported to our laboratory for further examination, testing, and classification. Information provided on the boring logs attached to this report includes soil descriptions, consistency evaluations, boring depths, sampling intervals, and groundwater conditions. The borings were backfilled with auger cuttings and/or bentonite chips upon completion of field services.

Geotechnical Engineering Report

Waverly Utilities Solar Project ■ Waverly, Iowa
November 9, 2017 ■ Terracon Project No. 13175123



During the field exploration, a field log of each boring was prepared by the drill crew to record data including visual classifications of the materials encountered during drilling as well as the drill crew's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent the engineer's interpretation of the subsurface conditions at the boring locations based on field and laboratory data and observation of the samples.

Laboratory Testing

Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods are applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

The laboratory testing program often includes examination of soil samples by an engineer. Based on the material's texture and plasticity, we describe and classify the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

SITE LOCATION

Waverly Utilities Solar Project ■ Waverly, IA
November 9, 2017 ■ Terracon Project No. 13175123

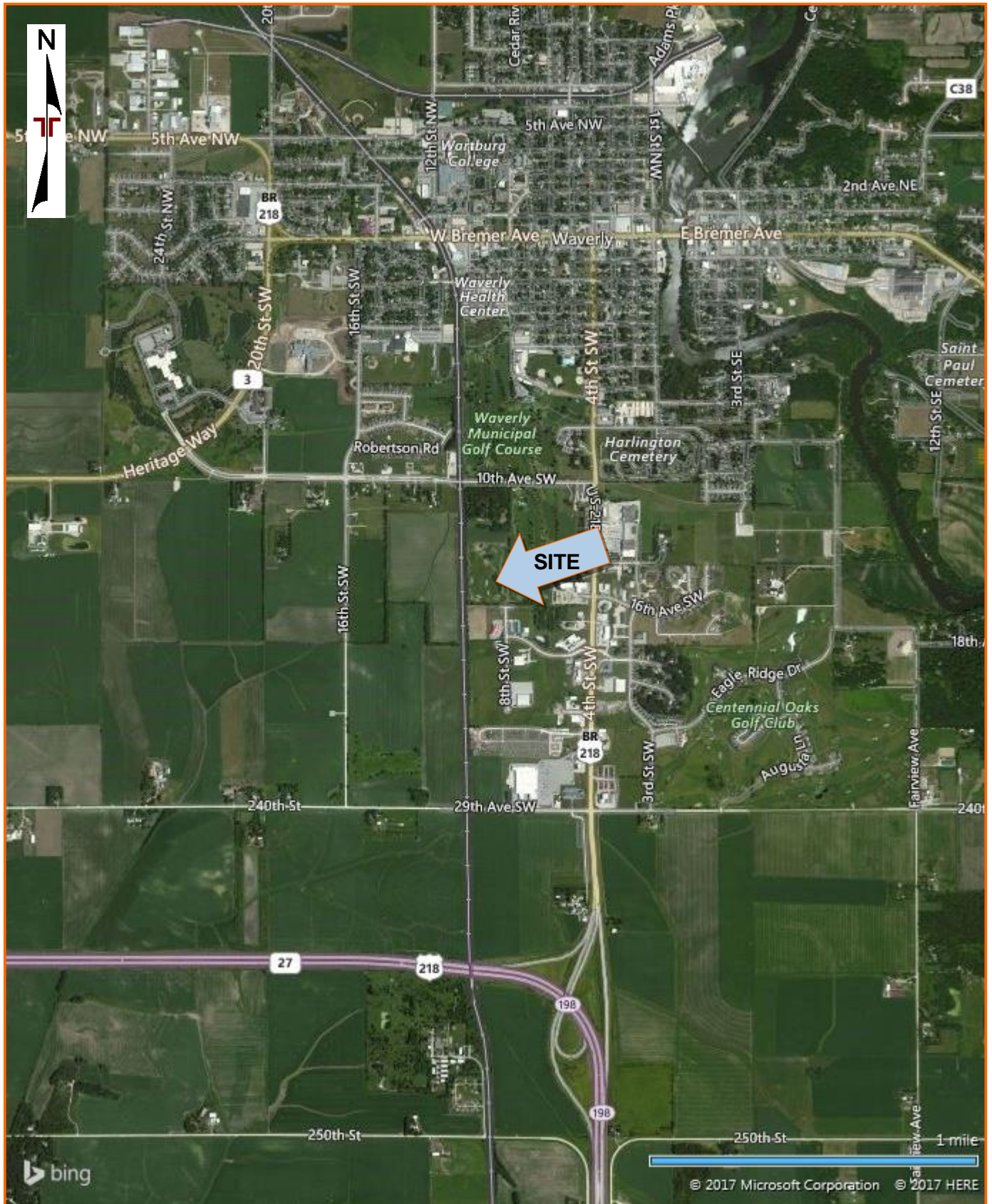


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION PLAN

Waverly Utilities Solar Project ■ Waverly, IA
November 9, 2017 ■ Terracon Project No. 13175123

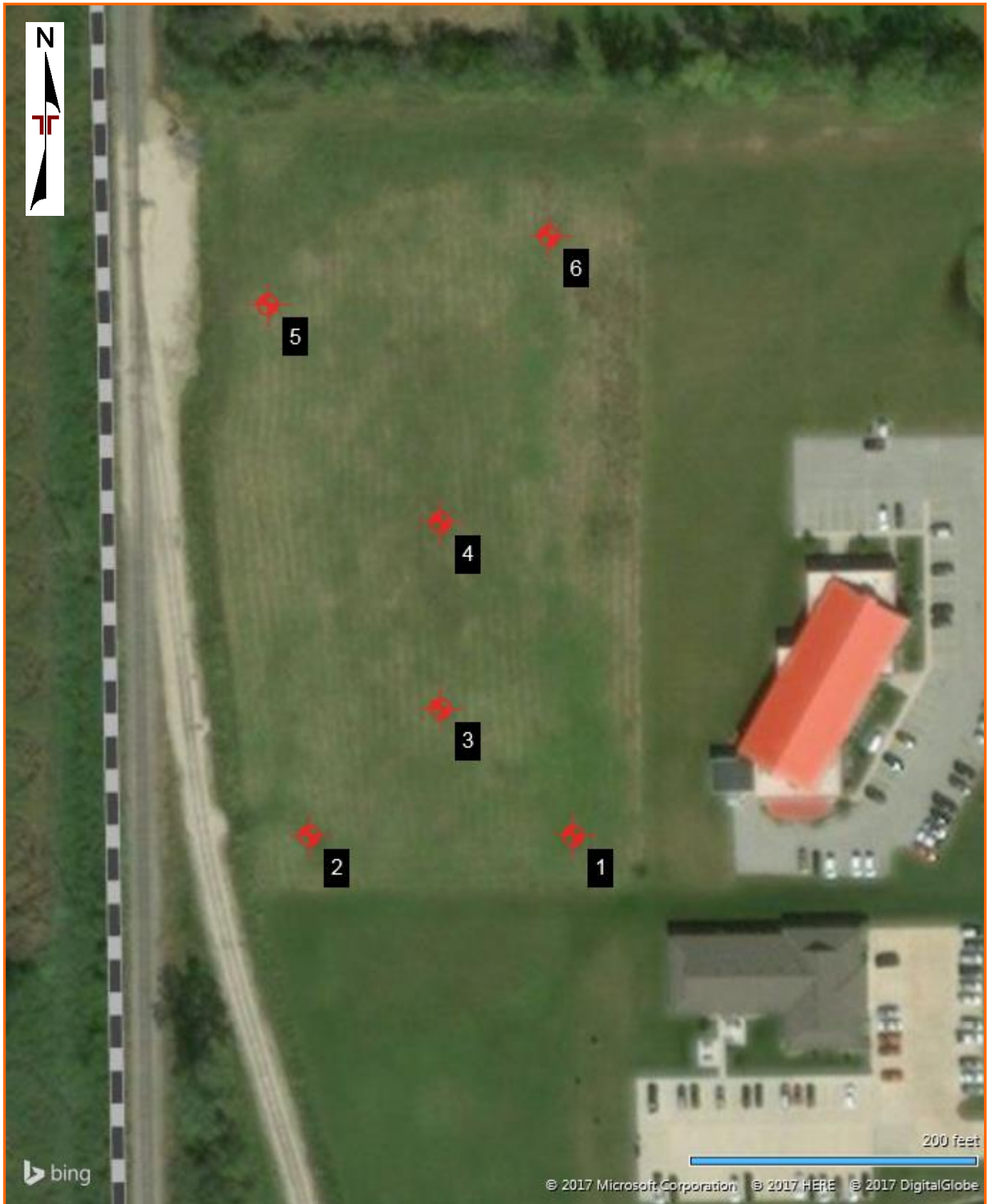


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS




BORING LOG NO. 1

PROJECT: Waverly Utilities Solar Project

CLIENT: Waverly Utilities
Waverly, IA

SITE: 8th Street SW
Waverly, IA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_13175123 WAVERLY UTILITIES.GPJ TERRACON_DATATEMPLATE.GDT 11/7/17

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.708° Longitude: -92.4822° Surface Elev.: 104.0 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY HP (psf)	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
								TEST TYPE	COMPRESSIVE STRENGTH (psf)	STRAIN (%)			
DEPTH	ELEVATION (Ft.)												
	TOPSOIL	3.0			12	2-5-7 N=12					29	62-30-32	
	SANDY LEAN CLAY (CL) , trace gravel, gray and brown, medium stiff to stiff	5			10	2-2-2 N=4 1000 (HP)					22		
		18			18	1-2-3 N=5 2500 (HP)					19		
		10	▽		18	1-2-3 N=5 3000 (HP)					19		
		11.5			18	3-5-7 N=12 5500 (HP)					17		
	SANDY LEAN CLAY (CL) , trace gravel and sand layers, brown and gray, very stiff	12.5			18	3-5-7 N=12 5500 (HP)					17		
	SANDY LEAN CLAY (CL) , trace gravel, gray, very stiff	15	▽		18	3-5-7 N=12 6500 (HP)					18		
		20			18	3-6-10 N=16 8000 (HP)					18		
	Boring Terminated at 20.5 Feet	20.5											
						Bulk sample from 1-3'							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).

Notes:

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

▽ 9' observed while sampling

▽ 13.5' observed after casing removal

☒ Cave-in at 17.5' after casing removal



Boring Started: 10-13-2017

Boring Completed: 10-13-2017

Drill Rig: # 872

Driller: WE

Project No.: 13175123


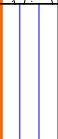



BORING LOG NO. 2

PROJECT: Waverly Utilities Solar Project

CLIENT: Waverly Utilities
Waverly, IA

SITE: 8th Street SW
Waverly, IA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_13175123 WAVERLY UTILITIES.GPJ TERRACON DATATEMPLATE.GDT 11/17/17

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.708° Longitude: -92.4829° Surface Elev.: 108.0 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY HP (psf)	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
								TEST TYPE	COMPRESSIVE STRENGTH (psf)	STRAIN (%)			
DEPTH		ELEVATION (Ft.)											
	TOPSOIL												
	SILT (ML) , light brown, medium stiff	3.0 6.0	105 102			2-4-5 N=9 2-4-3 N=7 1500 (HP)					30 23		
	SANDY LEAN CLAY (CL) , trace gravel, brown, medium stiff	6.0 11.5	102 96.5	▽		1-2-3 N=5 2-2-4 N=6 2500 (HP)	2000 (HP)				18 16		
	SANDY LEAN CLAY (CL) , trace gravel, brown and gray, very stiff	11.5 13.0	96.5 95			4-8-11 N=19 9000+ (HP)					13		
	SANDY LEAN CLAY (CL) , trace gravel, gray, very stiff to hard	13.0 20.5	95 87.5	▽		3-8-12 N=20 9000+ (HP)					14		
	Boring Terminated at 20.5 Feet	20.5	87.5	▽		4-7-11 N=18	9000+ (HP)				16		

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger



See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).


Notes:

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

-  7' observed while sampling
-  17' observed after casing removal

 Cave-in at 18' after drilling



Boring Started: 10-13-2017

Boring Completed: 10-13-2017

Drill Rig: # 872

Driller: WE





Project No.: 13175123

BORING LOG NO. 3

PROJECT: Waverly Utilities Solar Project

CLIENT: Waverly Utilities
Waverly, IA

SITE: 8th Street SW
Waverly, IA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.7083° Longitude: -92.4826° Surface Elev.: 106.5 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY HP (psf)	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
								TEST TYPE	COMPRESSIVE STRENGTH (psf)	STRAIN (%)			
DEPTH	ELEVATION (Ft.)												
	TOPSOIL												
3.0	103.5				15	1-3-6 N=9					28		
	SANDY LEAN CLAY (CL) , trace gravel, gray and brown, medium stiff				12	2-2-2 N=4	1500 (HP)				19		
		5			18	2-3-3 N=6	2500 (HP)				17		
		10			18	1-2-3 N=5 2000 (HP)					19		
11.5	95				18	3-5-7 N=12					16		
		15			18	3-6-8 N=14	7000 (HP)				17		
		20			18	3-6-8 N=14	7500 (HP)				17		
	20.5	86											
Boring Terminated at 20.5 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).


Notes:


Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

 19.5' observed while sampling

 17.5' observed after casing removal

 Cave-in at 18' after drilling



Boring Started: 10-13-2017

Boring Completed: 10-13-2017

Drill Rig: # 872

Driller: WE

Project No.: 13175123

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_13175123 WAVERLY UTILITIES.GPJ TERRACON_DATATEMPLATE.GDT 11/7/17


BORING LOG NO. 4

PROJECT: Waverly Utilities Solar Project

CLIENT: Waverly Utilities
Waverly, IA

SITE: 8th Street SW
Waverly, IA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_13175123 WAVERLY UTILITIES.GPJ TERRACON_DATATEMPLATE.GDT 11/17/17

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.7086° Longitude: -92.4826° Surface Elev.: 107.5 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY HP (psf)	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
								TEST TYPE	COMPRESSIVE STRENGTH (psf)	STRAIN (%)			
DEPTH	ELEVATION (Ft.)												
	TOPSOIL												
3.0		104.5			9	2-3-3 N=6					15		
5.5	SANDY LEAN CLAY (CL) , trace gravel, with sand seams, dark brown and brown, stiff	102			16	3-5-4 N=9					16		
11.5	SANDY LEAN CLAY (CL) , trace gravel, gray and brown, medium stiff	96			18	2-3-4 N=7 3500 (HP)					22		
15.5		10			18	2-2-3 N=5 2000 (HP)					17		
11.5	SILTY SAND (SM) , fine grained, brown, very dense	96			18	12-22-25 N=47					14		
14.0	SAND (SP-SC) , with clay layers, trace gravel, fine to coarse grained, brown, very dense	93.5	▽		12	20-50/5"					8		
16.0	SANDY LEAN CLAY (CL) , trace gravel, gray, very stiff	91.5	▽		18	4-7-12 N=19 8000 (HP)					16		
20.5	Boring Terminated at 20.5 Feet	87											

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).


Notes:

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

- ▽ 14' observed while sampling
- ▽ 17' observed after casing removal

 Cave-in at 17.5' after drilling



Boring Started: 10-13-2017

Boring Completed: 10-13-2017

Drill Rig: # 872

Driller: WE

Project No.: 13175123



BORING LOG NO. 5

PROJECT: Waverly Utilities Solar Project

CLIENT: Waverly Utilities
Waverly, IA

SITE: 8th Street SW
Waverly, IA

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_13175123 WAVERLY UTILITIES.GPJ TERRACON_DATATEMPLATE.GDT 11/7/17

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.709° Longitude: -92.483° Surface Elev.: 110.0 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY HP (psf)	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
								TEST TYPE	COMPRESSIVE STRENGTH (psf)	STRAIN (%)			
DEPTH	ELEVATION (Ft.)												
	TOPSOIL												
3.0		107		8		2-3-4 N=7					28		
5.5	SANDY LEAN CLAY (CL) , trace gravel, gray and brown, medium stiff	104.5		14		1-2-3 N=5	1000 (HP)				20		
11.5	SANDY LEAN CLAY (CL) , with sand layers, trace gravel, brown, soft to medium stiff	98.5		18		0-1-2 N=3 500 (HP)					17		
13.0	SANDY LEAN CLAY (CL) , trace gravel, brown and gray, very stiff to hard	97	▽	18		1-2-4 N=6 1500 (HP)					16		
15.0	SANDY LEAN CLAY (CL) , trace gravel, gray, hard	95		18		5-8-13 N=21 9000+ (HP)					13		
17.5		92.5	▽	18		5-8-14 N=22 9000+ (HP)					13		
20.5	Boring Terminated at 20.5 Feet	89.5	▽	18		4-9-12 N=21 9000+ (HP)					14		
						Bulk sample from 1-3'							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).


Notes:

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

- ▽ 9.5' observed while sampling
- ▽ 17' observed after casing removal

 Cave-in at 17.5' after drilling

Terracon
3105 Capital Way Ste 5
Cedar Falls, IA

Boring Started: 10-13-2017

Boring Completed: 10-13-2017

Drill Rig: # 872

Driller: WE


Project No.: 13175123

BORING LOG NO. 6

PROJECT: Waverly Utilities Solar Project

CLIENT: Waverly Utilities
Waverly, IA

SITE: 8th Street SW
Waverly, IA

GRAPHIC LOG	LOCATION See Exploration Plan Latitude: 42.7092° Longitude: -92.4823° Surface Elev.: 107.0 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	RECOVERY (in.)	FIELD TEST RESULTS	LABORATORY HP (psf)	STRENGTH TEST			WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI
								TEST TYPE	COMPRESSIVE STRENGTH (psf)	STRAIN (%)			
DEPTH	ELEVATION (Ft.)												
	TOPSOIL												
2.0	105				13	3-6-8 N=14					20 17		
3.5	103.5				11	2-3-3 N=6 2500 (HP)					18	32-16-16	
9.0	98				12	2-3-4 N=7 3000 (HP)					16		
11.0	96				18	3-6-9 N=15 8000 (HP)					15		
17.0	90				18	3-8-12 N=20 9000 (HP)					14		
20.5	86.5				18	5-9-12 N=21 9000+ (HP)					14		
20.5	86.5				18	6-13-12 N=25 8000 (HP)					10		
Boring Terminated at 20.5 Feet													

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
Hollow Stem Auger

See [Exploration and Testing Procedures](#) for a description of field and laboratory procedures used and additional data (If any).


Notes:

Abandonment Method:
Boring backfilled with soil cuttings and bentonite chips upon completion.

See [Supporting Information](#) for explanation of symbols and abbreviations.

WATER LEVEL OBSERVATIONS

None observed after drilling

 **Cave-in at 14.5' after drilling**



Boring Started: 10-13-2017

Boring Completed: 10-13-2017

Drill Rig: # 872

Driller: WE

Project No.: 13175123

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GEO SMART LOG-NO WELL_13175123 WAVERLY UTILITIES.GPJ TERRACON_DATATEMPLATE.GDT 11/17/17

SUPPORTING INFORMATION

UNIFIED SOIL CLASSIFICATION SYSTEM

Waverly Utilities Solar Project ■ Waverly, Iowa

November 9, 2017 ■ Terracon Project No. 13175123



Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification			
				Group Symbol	Group Name ^B		
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3$ ^E	GW	Well-graded gravel ^F		
		Gravels with Fines: More than 12% fines ^C	$Cu < 4$ and/or $1 > Cc > 3$ ^E	GP	Poorly graded gravel ^F		
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}		
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}		
		Sands with Fines: More than 12% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3$ ^E	SW	Well-graded sand ^I		
			$Cu < 6$ and/or $1 > Cc > 3$ ^E	SP	Poorly graded sand ^I		
		Fines classify as ML or MH	SM	Silty sand ^{G, H, I}			
		Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}			
	Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	$PI > 7$ and plots on or above "A" line	CL	Lean clay ^{K, L, M}	
				$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}	
Organic:			Liquid limit - oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}	
			Liquid limit - not dried			Organic silt ^{K, L, M, O}	
Silts and Clays: Liquid limit 50 or more		Inorganic:	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}		
			PI plots below "A" line	MH	Elastic Silt ^{K, L, M}		
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}	
			Liquid limit - not dried			Organic silt ^{K, L, M, Q}	
		Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

^A Based on the material passing the 3-inch (75-mm) sieve

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

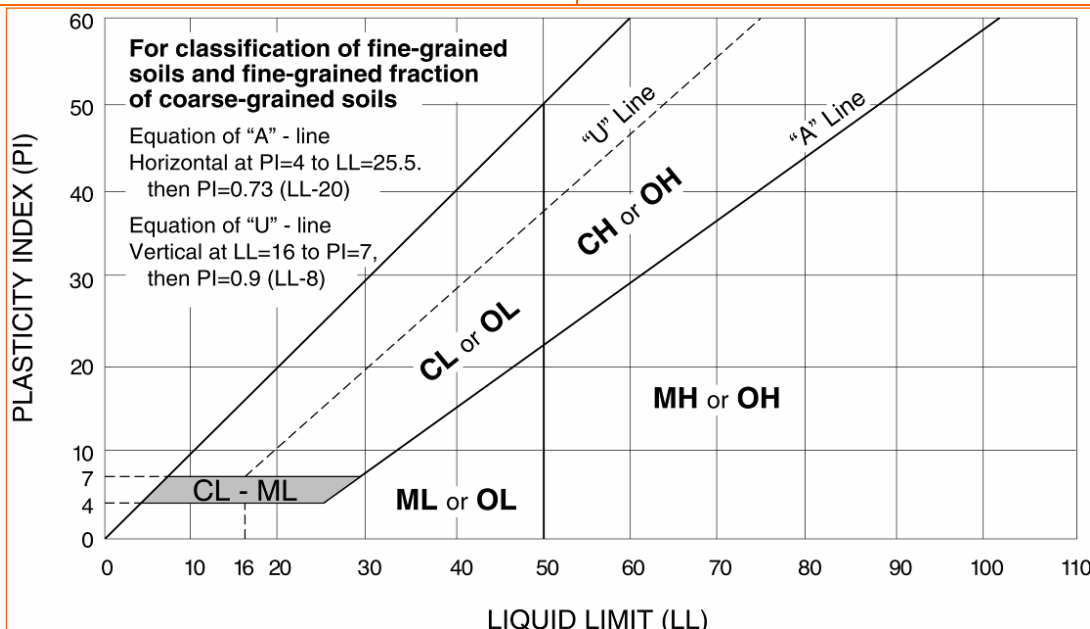
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

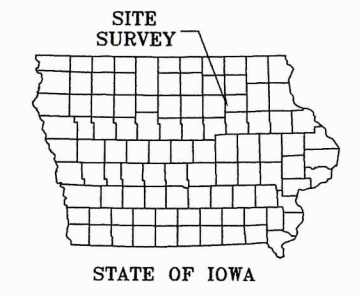
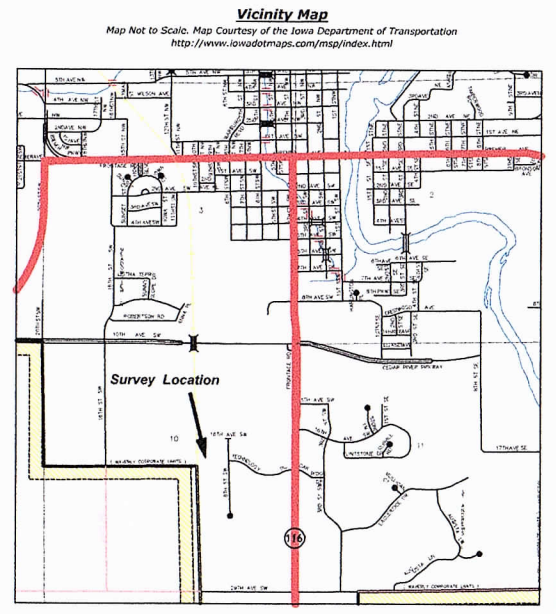
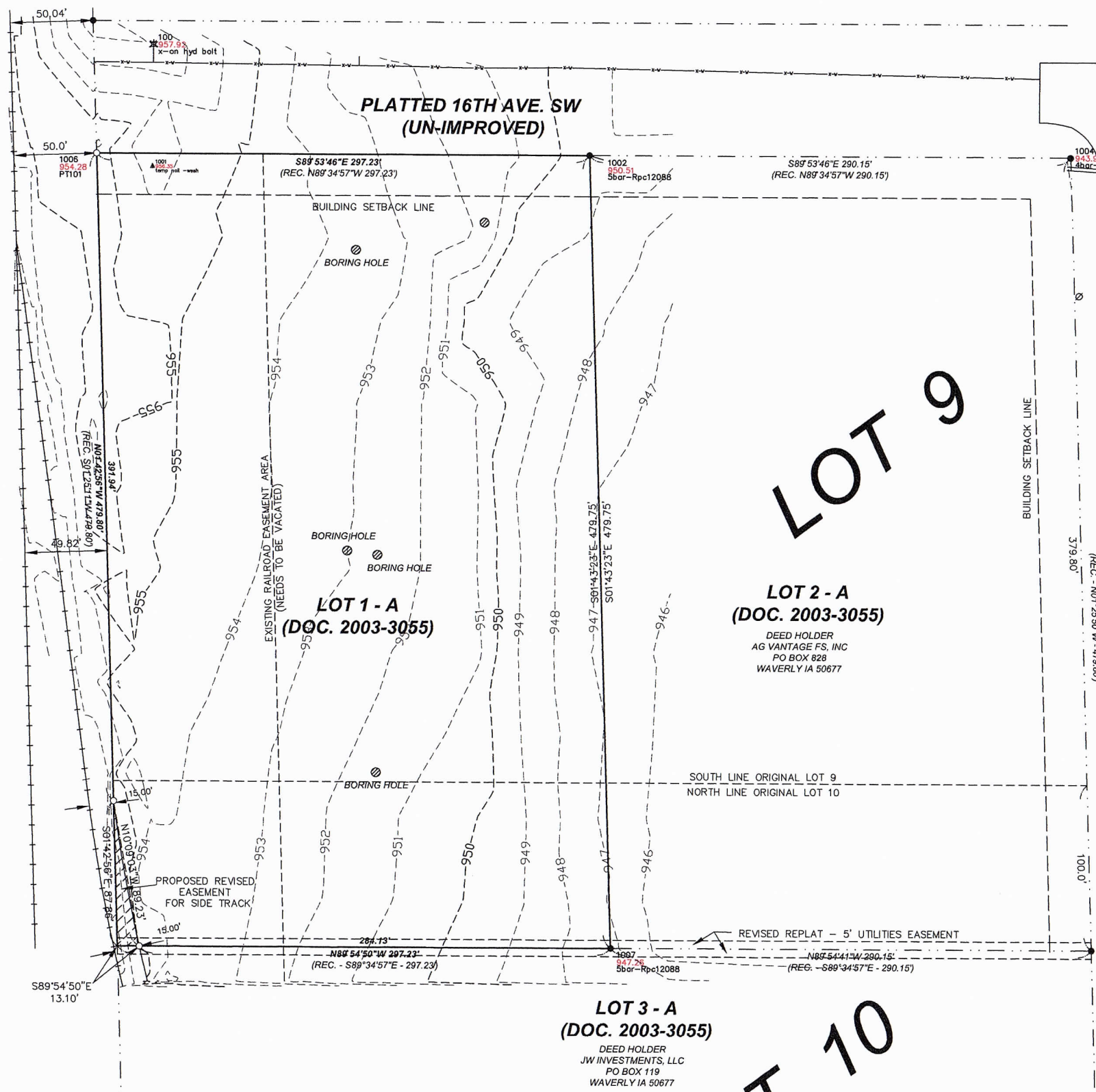
^Q PI plots below "A" line.



APPENDIX

PROJECT DRAWINGS

- **Topographical Survey (One Sheet)**
- **Site Plan Layout (One Sheet)**



REDUCED TO HALF SIZE

Survey Legend

	Section Line
	Railroad Centerline
	Railroad Right-of-Way
	Road Centerline
	Road Right-of-Way
	Existing Tree Line
	Existing Waverly Fiberoptic Line
	Existing Medicom cable Line
	Existing Overhead Electric Line
	Existing Buried Electric Line
	Existing Storm Sewer Line
	Existing Water Line
	Existing Telephone Line
	Existing Building Overhang
	Existing Landscaping
	Communications Manhole or Pedestal
	Underground Fiberoptic Box
	Deciduous Tree (Diameter in Inches)
	Conifer Tree (Diameter in Inches)
	Sign Post
	Control Point
	Power Pole
	Electric Transformer
	Fire Hydrant
	Land Corner as Noted
	Lot Markers Found as Noted
	Markers Set - 5/4 bar w/Red PC #10793

Site Control Points

Point No.	Northing	Easting	Elevation	Description
100	3723223.359	5194560.520	957.92	BM "X" on Hydrant Bolt
1001	3723149.786	5194560.130	956.35	12" land-spk w/washer
1002	3723157.143	5194923.769	950.51	5bar-Rpc12088
1003	3722677.165	5195128.260	944.41	5bar-Rpc12088
1004	3723156.616	5195113.761	943.58	4bar-Rpc10793
1006	3723157.600	5194526.517	954.28	4bar-Rpc10793
1007	3722677.614	5194838.193	947.26	5bar-Rpc12088

Description Information (Doc. 2005-3055)

OWNER: City of Waverly, PO BOX 616, Waverly, IA 50677

"Lot 1-A" of the Replat of Lots 9 and 10, Waverly Industrial Plaza, Being in Section 10, Township 91 North, Range 14 West of the 5th PM of Waverly, Bremer County, Iowa

Utility Information

- No Utilities located were called for this Site Plan
(Iowa One-Call Phone #1-800-292-8989)

Contacts

MEDIACOM
Contact Name: Mike Ungs
Contact Phone: 319-269-6266
Contact Email: mungs@mediacomcc.com

CENTURYLINK
Contact Name: Tom Stummer
Contact Phone: 303-664-8090
Contact Email: Thomas.stummer@centurylink.com

MIDAMERICAN ENERGY-GAS
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CITY OF WAVERLY
Contact Name: Vern Sebelsky
Contact Phone: 319-352-6247
Contact Email: sullivan@ci.waverly-ia.us

WAVERLY UTILITIES
Contact Name: Mike Whitney
Contact Phone: 319-352-6251
Contact Email: mwhitney@waverlyutilities.com

Control Points & Benchmarks

BM 100
Set Cut-X on the East Bolt of a Fire Hydrant
(N. side 16th Avenue, SW, 80 feet E of RR - R.O.W.)
Elevation: 957.92 (NGVD88)

note: used IAR7N
Iowa North 1401
US State plane NAD 83
GEOID12A

TERRY D. VAN LANINGHAM, PLS. INC.
 120 2ND STREET SW
 WAVERLY, IOWA
 (319) 352-0801
 (319) 325-2522
 LAND SURVEYING SINCE 1986

Revisions:
 DRAWN: T.D.V.
 DATE: FEB 09, 2018

PROJECT NO.:
 2018-006(1)

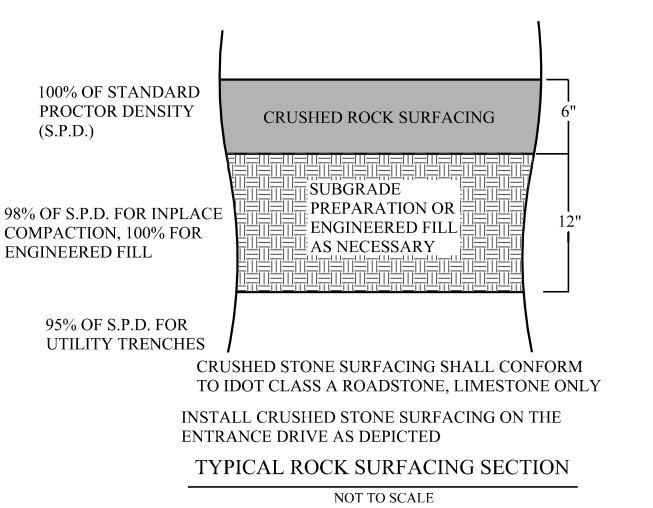
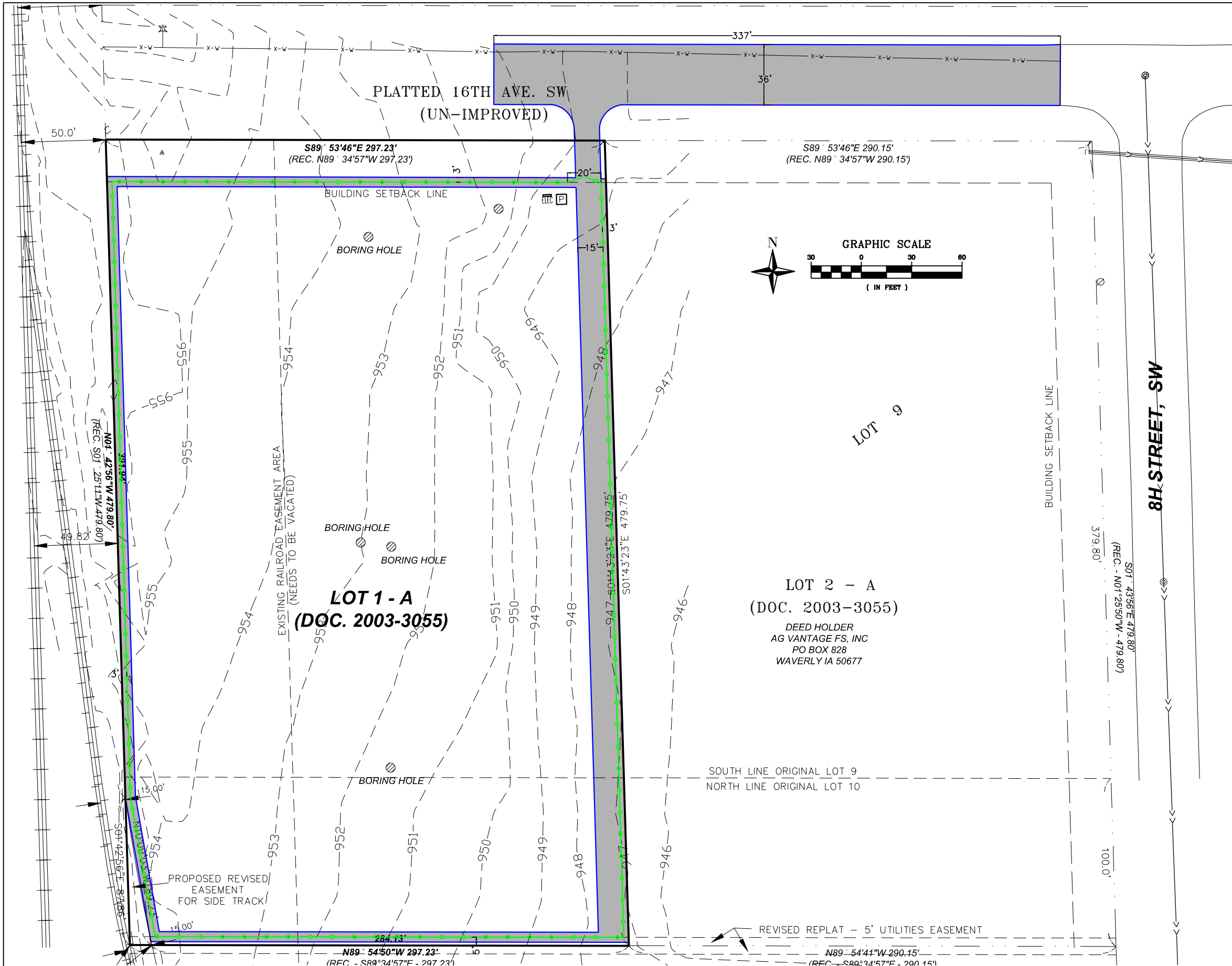
CHK'D: T.D.V.
SCALE:
 1" = 20'

SHEET 1 OF 1

SITE SURVEY FOR WAVERLY UTILITIES LOT 1-A 1, "REPLAT LOTS 9 & 10 WAVERLY INDUSTRIAL PLAZA CITY OF WAVERLY, BREMER CO., IOWA SEC. 10-91-14

I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Land Surveyor under the laws and regulations of the State of Iowa.

License # 10793 Date: MMR 27, 2018
 My registration renewal date is December 31, 2019. Pages or sheets covered by this seal: THIS DOCUMENT ONLY.



LEGEND - SITE PLAN

— OHE —	EXISTING OVERHEAD ELECTRIC LINE
— E (X) —	EXISTING UNDERGROUND ELECTRIC LINE
— C (X) —	EXISTING UNDERGROUND COMMUNICATION LINE
— FO (X) —	EXISTING UNDERGROUND FIBER OPTIC LINE
— G (X) —	EXISTING UNDERGROUND GAS LINE
— W (X) —	EXISTING UNDERGROUND WATER LINE
+++++	EXISTING RAILROAD TRACKS
—●—	PROPOSED FENCING
- - - -	EXISTING EDGE OF GRAVEL
—●—	PROPOSED EDGE OF ROCK
—●—	EXISTING EDGE OF PAVED STREET
[Grey Box]	6" ROCK SURFACING
[P]	PROPOSED STEP UP TRANSFORMER LOC
[ECP]	PROPOSED ELECTRICAL SERVICE PANEL(S)
⊙	EXISTING POWER POLE, POWER POLE WITH LIGHT
—	EXISTING GUY WIRE
—	EXISTING SANITARY SEWER
—	EXISTING STORM SEWER
—	RIGHT-OF-WAY/PROPERTY LINE
—	EXISTING CONTOURS
—	PROPOSED CONTOURS

REV	DATE	DESCRIPTION
A	4-2-18	ISSUED FOR BIDDING



Project Manager: DJH
 Designer: DLV
 Project Number: 419612
 Phone: (712) 472-2531

COMMUNITY SOLAR GARDEN
 WAVERLY, IOWA

WAVERLY MUNICIPAL UTILITIES
 SITE PLAN LAYOUT

SHEET
 D.01