

# **Minden-Gardnerville Sanitation District**

## **Digester No. 2 Cover Replacement– 60% Submittal**

Client Project Number: PWP- DO-\_\_\_\_-\_\_\_\_

## **Construction Documents Project Manual**

**January 2020**

**HDR Project No. 00125 - 10194904**



# **Digester No. 2 Cover Replacement**

**Minden-Gardnerville Sanitation District**

**PWP-DO-\_\_\_\_-\_\_\_\_**

## **Construction Documents Project Manual**

60% Submittal

**PRELIMINARY  
FOR REVIEW ONLY**

January 2020

Prepared under the responsible charge of

Craig A. Olson  
13064



2365 Iron Point Road, Suite 300  
Folsom, CA 95630



# TABLE OF CONTENTS

---

## NOTICE TO CONTRACTORS

Invitation for Bids

## INFORMATION TO BIDDERS

2020 State of Nevada Prevailing Wage Rates Douglas County with  
Latest Amendment

## BID FORM

Bid Schedule

Statement of Bidder's Experience and Financial Qualifications

List of Subcontractors

Bid Bond

Affidavit Certifying Compliance with NRS 338.0117

## AGREEMENT

## EXHIBIT A

Performance Bond

## EXHIBIT B

Payment Bond

## EXHIBIT C

Notice to Proceed

## EXHIBIT D

EJCDC Standard General Conditions of the Construction Contract

## EXHIBIT E

EJCDC Supplemental Conditions of the Construction Contract

## EXHIBIT F

Special Conditions

## EXHIBIT G

Technical Specifications



# NOTICE TO CONTRACTORS

## Invitation for Bids

The **Minden Gardnerville Sanitation District Board of Trustees** invites sealed proposals for the project entitled **Digester No. 2 Cover Replacement**, to be received at the **Minden Gardnerville Sanitation District Office**, located at **1790 Highway 395, Minden, Nevada 89423**, until \_\_\_\_\_ A.M. local time on \_\_\_\_\_, \_\_\_\_\_, **20\_\_**, and then publicly opened and read aloud in the **Board Room**.

The project is located in **Minden, Nevada** as shown on the plans: The scope of work is to demolition and removal of existing floating cover, interior coating, miscellaneous piping modification in Anerobic Digester No. 2.

The ENGINEER's estimate is between \$ \_\_\_\_\_ - \$ \_\_\_\_\_.

A prebid conference will be held at \_\_\_\_\_ A.M. on \_\_\_\_\_, \_\_\_\_\_, **20\_\_**, at the **Minden Gardnerville Sanitation District Office** in the **Board Room**. It is mandatory for Contractors to visit the project site and inspect the project scope prior to submission of bid. Contact Peter Baratti (District Manager) (775-782-3546) to arrange site visit, sign-in verification will be required.

Plans and Contract Documents may be examined and obtained **after** \_\_\_\_\_ A.M. on \_\_\_\_\_, \_\_\_\_\_, **20\_\_** at the following location:

ENGINEER: HDR  
2365 Iron Point Road, Suite 300  
Folsom, CA 95630  
Craig.Olson@hdrinc.com

Complete bid packages and contract documents are being made available at no charge to interested Bidders electronically, or with a non-refundable deposit of **forty dollars (\$40.00)** for a hard copy. Bidders are asked to contact Resource Concepts, Inc. if they would like to request an electronic copy of the bid package and contract documents. Plans and Contract Documents will also be mailed to prospective bidders, if requested, for an additional non-refundable fee of thirty-five dollars (\$35.00) for each set, to cover the cost of postage and handling.

A bid security for not less than five percent (5%) of the amount must accompany each proposal. Performance and payment bonds equal to 100% of the contract amount will be required upon award of the contract, which is anticipated to be made on or about \_\_\_\_\_, **20\_\_**. Prevailing Wages must be paid on this contract.

*Public Works Project Identifying Number **DO-**\_\_\_\_-\_\_\_\_*

### Publication in the:

Record Courier, Gardnerville, Nevada

Dates: \_\_\_\_\_, **20\_\_** & \_\_\_\_\_, **20\_\_**





# INFORMATION TO BIDDERS

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## 1. RECEIPT AND OPENING OF BIDS

The **Minden Gardnerville Sanitation District Board of Trustees** (herein after called the "OWNER") invites formal bids on the form attached hereto. All blanks must be appropriately completed. Bids will be received by the OWNER at the **Minden Gardnerville Sanitation District Office**, located at **1790 Highway 395, Minden, Nevada 89423**, until \_\_\_\_\_ A.M. local time on \_\_\_\_\_, 20\_\_\_\_. Bids will be opened in the **Board Room**. Bids received after the designated closing time will be returned unopened to the Bidder. The envelopes containing the bids must be sealed, addressed to the above address, indicate Bidders name and address and designated as bid for:

### **MINDEN GARDNERVILLE SANITATION DISTRICT DIGESTER NO. 2 COVER REPLACEMENT PROJECT**

The OWNER may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bids may be withdrawn prior to the above scheduled time of opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered.

## 2. ERRORS, DISCREPANCIES, INFORMALITIES AND EXCEPTIONS IN BIDS

- A. **Unilateral Errors:** If, within 24-hours after Bids are opened, any Bidder files a duly signed written notice with the OWNER, and within 3 days thereafter demonstrates to the reasonable satisfaction of the OWNER that, (a) there has been a material and substantial error in the preparation of the Bid; (b) the error is of such great consequence that to enforce the contract would be unconscionable; (c) the error occurred notwithstanding the exercise of reasonable care in the preparation of the Bid; and (d) the error is subject to objective determination, then the Bidder may withdraw his Bid and the Bid Security will be returned provided that the OWNER is not seriously prejudiced, except for the loss of his bargain. Thereafter, that Bidder will be disqualified from further bidding of the Work as defined in the plans and specifications entitled **Minden Gardnerville Sanitation District – Digester No. 2 Cover Replacement Project**.
- B. **Discrepancies in the Bid:** Discrepancies between words and figures will be resolved so that the written words shall be binding on the Bidder. Discrepancies between the indicated sum of any column of figures and the correct sum will be resolved so that the correct sum shall be binding on the Bidder. Discrepancies in the multiplication of unit prices will be resolved so that the correct multiplication shall be binding on the Bidder.
- C. **Informalities:** The OWNER reserves the right to waive any informalities in bids received. Informalities may involve but are not limited to variances between bid solicitation and offers which do not involve price, time or a

change in the work and which do not impair the ability of the OWNER to compare Bids.

- D. **Exceptions:** OWNER reserves the right to disregard at its sole discretion and for the benefit of the project all nonconforming, nonresponsive, unbalanced (as determined solely by the OWNER) and conditional Bids.

### 3. QUALIFICATION OF BIDDER

The OWNER may make such investigations as he deems necessary to determine the ability of the Bidder to perform the Work and the Bidder shall furnish the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any Bid if the evidence submitted by or investigation of such Bidder fails to satisfy the OWNER that such Bidder is properly qualified to carry out the obligations of the contract and to complete the Work contemplated therein. Conditional Bids will not be accepted.

The determination of the lowest responsive and responsible Bidder may involve all or some of the following factors: price, conformity to specifications, financial ability to meet the contract, previous performance, facilities and equipment, availability of repair parts, experience, delivery promise, terms of payments, compatibility as required, other costs, and other objective and accountable factors which are reasonable and in accordance with the requirements of the Nevada Revised Statutes.

The bidders for public works projects which are expected to cost more than \$250,000.00 are welcome to submit a certificate of eligibility with the bid, to receive a preference in bidding along with a signed affidavit regarding compliance with NRS 338.0117. An affidavit form is included with the bid forms. The guidelines for bidder preference are outlined in NRS 338.147 and per AB144/574. See Supplemental General Condition 6.09.G. Bidder or named Subcontractor shall be qualified and experienced in all aspects of the work as shown in the plans.

Bidders submitting bids for this proposal shall possess a valid Nevada State CONTRACTOR's License for the type of work covered by the bid at the time of the bid and said work shall not exceed the limit of his license. (NRS 338.145)

To demonstrate the qualifications to perform the Work, each Bidder must submit a completed Statement of Bidder's Experience and Financial Qualifications on the form supplied with the complete Bid Form.

### 4. BID SECURITY

Each Bid must be accompanied by cash, certified check or a bid bond prepared on the form of bid bond attached hereto, duly executed by the Bidder as principal and having as surety thereon a surety company approved by the OWNER, in the amount of five (5%) percent of the base bid. In such case, checks or bid bonds will be returned to all except the three (3) lowest Bidders within five (5) calendar days after the opening of bids. The remaining cash, checks or bid bonds will be returned promptly after the OWNER and the accepted Bidder have executed a contract or if no award has been made within thirty (30) calendar days after the date of opening of

Bids, upon demand of the Bidder at any time thereafter so long as he has not been notified of the acceptance of his bid.

## **5. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT**

The successful Bidder, upon his failure or refusal to execute and deliver the contract and bonds required within ten (10) calendar days from the formal award date of the contract shall forfeit to the OWNER as liquidated damages for such failure or refusal, the bid security deposited with his Bid.

## **6. CONDITIONS OF WORK**

Each Bidder must inform himself fully of the conditions, including soils conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful Bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.

The CONTRACTOR shall familiarize himself with the scope of the work and the site characteristics that affect the work that is specified. The CONTRACTOR shall sequence the work and shall utilize such equipment and labor to perform the work consistent with the site characteristics and limitations.

## **7. ADDENDA AND INTERPRETATIONS**

Supplemental instruction will be in the form of a written addendum to the specifications. All addenda will be distributed to all prospective Bidders (at the addresses furnished for such purpose), not later than two (2) calendar days prior to the date fixed for the opening of bids. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligation under this bid as submitted. All addenda so issued shall become part of the contract documents. The Bidder shall acknowledge the receipt of all addendums.

## **8. SECURITY FOR FAITHFUL PERFORMANCE**

Simultaneously with his delivery of the executed contract, the Bidder shall furnish a surety bond(s) as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond(s) shall be a duly authorized surety company satisfactory to the OWNER. Bond(s) shall be for an amount equal to the contract price as provided for in the General Conditions.

The Minden Gardnerville Sanitation District reserves the right to increase the bonding amount for the Performance and Payment Bonds. The District will notify the Contractor awarded the project of any changes in the bonding amount with the official notice of award. The Minden Gardnerville Sanitation District will reimburse the Contractor for any additional bonding requirements unless the additional bonding requirements are provided to all contractors prior to the bidding process.

## 9. POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

## 10. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable state laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though written out in full.

## 11. METHOD OF AWARD – LOWEST QUALIFIED BIDDER(S)

The contract will be awarded to the lowest, responsive, responsible Bidder based on the total bid amount if the total bid submitted by a responsible Bidder does not exceed the amount of funds then estimated by the OWNER as available to finance the contract. The OWNER reserves the right to reject all bids. The OWNER also reserves the right to reject any and all proposals or accept the proposal, which is deemed by the OWNER to be in the best interest of the OWNER.

## 12. OBLIGATION OF BIDDER

At the time of opening of bids, each Bidder will be presumed to have inspected the site and have read and be thoroughly familiar with the plans and contract documents (including addenda). The failure or omission of any Bidder to examine any form, instrument, document or site change due to natural causes shall in no way relieve any Bidder from any obligation in respect to his bid. Site changes due to natural causes prior to bid opening shall not be cause for bid alteration or withdrawal.

## 13. COMMENCEMENT OF WORK

The Minden Gardnerville Sanitation District would request the work to be performed as soon as possible.

## 14. TIME OF COMPLETION & LIQUIDATED DAMAGES

The Work will be substantially completed within **two hundred seventy (270)** calendar days after the date when the Contract times commence to run as provided in paragraph 2.03 of the General Conditions. The CONTRACTOR may begin work anytime after the Notice to Proceed is submitted and the stipulations therein are met, but not before. Once the work has begun, the CONTRACTOR must make satisfactory and steady progress toward completion. The Bidder must also agree to pay liquidated damages in the sum of **two hundred (\$200.00)** dollars for each calendar day that expires after the time specified for Final Completion, until the work is completed.

## 15. SUBSTITUTION OF MATERIALS

The materials and equipment described in the Bid Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered unless written request for approval has been submitted by the Bidder and has been received by HDR Engineering (herein after called the "ENGINEER") at least five (5) days prior to the date for receipt of bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials or equipment of the Work that incorporation of the proposed substitute is upon the Bidder. The ENGINEER's decision of approval or disapproval of a proposed substitution shall be final. If the ENGINEER approves any proposed substitution, 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.

Following award of the contract the CONTRACTOR shall have seven (7) calendar days to submit for review requests for substitution of equivalent items (NRS 338.140).

For any substitution of materials which provides for value engineering on the project and a subsequent cost savings, the Owner shall be entitled to fifty (50%) percent of any cost savings generated by the value engineering alternative.

## 16. PREBID CONFERENCE

A pre-bid conference will be held at \_\_\_\_\_ A.M. on \_\_\_\_\_, 20\_\_ at the **Minden Gardnerville Sanitation District office, located at 1790 Highway 395, Minden, Nevada 89423.** The conference will be held in the **Board Room.** Representatives of OWNER and ENGINEER will be present to discuss the project. **It is mandatory for contractors who do not attend pre-bid conference to visit the project site and inspect project scope prior to submission of bid. Please contact Peter Baratti (District Manager) (775-782-3546) to arrange visit, sign-in verification will be required.** ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

## 17. LISTING OF SUBCONTRACTORS; REQUIREMENTS FOR SUBSTITUTION

1. Except as otherwise provided in subsection 2 (below), each bid submitted to any officer, department, board or commission for the construction of any public work or improvement must include:
  - A. The name of each subcontractor who will provide labor or a portion of the work or improvement to the CONTRACTOR for which he will be paid an amount exceeding five (5%) percent of the prime CONTRACTOR's total bid. Within two (2) hours after the completion of the opening of the bids, the general CONTRACTORS who submitted the three (3) lowest bids must submit a list of the name(s) of each subcontractor who will provide labor or a portion of the work or improvement to the CONTRACTOR for

which he will be paid an amount exceeding one (1%) percent of the prime CONTRACTOR's total bid or fifty thousand (\$50,000) dollars, whichever is greater, and the number of the license issued to the subcontractor pursuant to Chapter 624 of NRS. If a general CONTRACTOR fails to submit such a list within the required time, his bid may be deemed not responsive. A one (1%) percent list is provided in the bid form to allow contractors to submit their one (1%) percent list at the time of bid.

- B. A description of the portion of the work or improvement which each subcontractor named in the bid will complete.
- 2. The CONTRACTOR shall list in his bid pursuant to subsection 1 the name of a subcontractor for each portion of the project that will be completed by a subcontractor.
- 3. A CONTRACTOR whose bid is accepted shall not substitute any person for a subcontractor who is named in the bid, unless:
  - A. The awarding authority objects to the subcontractor, requests in writing a change in the subcontractor and pays any increase in costs resulting from the change; or
  - B. The substitution is approved by the awarding authority and:
    - (1) The subcontractor, after having a reasonable opportunity, fails or refuses to execute a written contract with the CONTRACTOR which was offered to the subcontractor with the same terms that all other subcontractors on the project were offered;
    - (2) The named subcontractor files for bankruptcy or becomes insolvent; or
    - (3) The named subcontractor fails or refuses to perform his subcontract within a reasonable time or is unable to furnish a performance bond and payment bond pursuant to NRS 339.025 (NRS 338.144).

## **18. PREVAILING WAGE RATE REQUIREMENTS**

The prevailing wage rates as established by the State Labor Commissioner must be paid when the contract amount, including change orders, is one hundred thousand (\$100,000.00) dollars or more. If the original contract amount is under one hundred thousand (\$100,000.00) dollars and change orders increase the contract amount over one hundred thousand (\$100,000.00) dollars, prevailing wages must be paid retroactive for the total contract. If prevailing wages must be paid regardless of the project size, the Notice to CONTRACTORS will state, "Prevailing wages must be paid on the project." The wage rates published in these specifications must be posted on the site of the project in a place generally visible to the workmen. (NRS 338.020).

The CONTRACTOR shall be responsible for adjusting Prevailing Wages Rates if revised rates are issued by the Labor Commissioner during execution of the contract. The current Prevailing Wage Rates issued by the Labor Commissioner are included in the Contract Documents.

## **19. PERMITS**

The Minden Gardnerville Sanitation District will obtain all necessary Douglas County permits for the proposed work. The CONTRACTOR shall be responsible for adhering to all submittal requirements of the respective agencies for obtaining the permits, and shall adhere to the conditions set forth in the permits.





## INFORMATION TO BIDDERS:

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20\_\_ State of Nevada Prevailing Wage Rates  
Douglas County with Amendment

### **Minden Gardnerville Sanitation District Digester No. 2 Cover Replacement**



# BID FORM

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**Proposal To**  
**MINDEN GARDNERVILLE SANITATION DISTRICT**  
*— for the —*  
**MINDEN GARDNERVILLE SANITATION DISTRICT**  
**DIGESTER NO. 2 COVER REPLACEMENT**

*Public Works Project Identifying Number* **DO-2020-**\_\_\_\_

<b>Name of Bidder:</b>			
<b>Business Address:</b>			
<b>Phone No.</b>		<b>Fax No.:</b>	

**TO: Board Members:**

Pursuant to and in compliance with your notice inviting sealed proposals (bids) and the other documents relating thereto, including Addenda No. \_\_\_\_\_ to \_\_\_\_\_, the undersigned Bidder, having familiarized himself with the terms of the contract document, local conditions affecting the performance of the contract, and the cost of the work at the place where the work is to be done, hereby proposes and agrees to perform within the time stipulated in the contract, including all of its component parts and everything required to be performed, and to provide and furnish any and all utility and transportation services necessary to perform the contract and complete in a workmanship like manner, all of the work required in connection with the construction of said work all in strict conformity with the plans and specifications and other contract documents, on file in the office of the OWNER for the prices hereinafter set forth.

The undersigned as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that his proposal is made without collusion with any persons, firms, or corporation; and he proposes and agrees, if the proposal is accepted, that he will execute a contract and that he will accept in full payment thereof the following prices, according to the attached Bid Schedule.

The following documents are attached to and made a condition of this Bid:

- A. Bid Schedule
- B. Statement of Bidder's Experience and Financial Qualifications
- C. List of Subcontractors
- D. Bid Bond
- E. Bid Item Clarification Summary
- F. NRS 338.0117 Affidavit



# BID FORM: BID SCHEDULE

## Minden Gardnerville Sanitation District

### Digester No. 2 Cover Replacement

The following completed Bid Schedule represents the CONTRACTOR's proposal for the cost of project improvements as described by the Project Improvement Plans and Contract Documents. Individual Bid Items are as further described and detailed in the Bid Schedule Clarification Summary, page 1, Bid Form.

Item #	Description	Est. Quantity	Unit	Unit Price	Total Price
1	Mobilization/Demobilization	1	LS	\$	\$
2	All other construction activities to complete the project	1	LS	\$	\$
		TOTAL BASE BID:			

*Total for schedule  
in words:*

*Dollars*

*And*

*Cents*

– End of Schedule –

**NOTE:** Please indicate if you are requesting bidding preference and have attached your Certificate of Eligibility and Affidavit to receive bidding preference.

**YES** \_\_\_\_\_ **NO** \_\_\_\_\_

**STATEMENT OF BIDDER'S EXPERIENCE AND FINANCIAL QUALIFICATIONS**  
**— Engineered Projects Completed In Past Five Years —**

Name, Location and Description of Project OWNER	Design ENGINEER	Date Completed	Contract Price	Reference/Contact Include Address & Phone





The Bidder's attention is directed to Article 17 of the Information for Bidders regarding requirements for listing subcontractors. The Bidder will hereinafter state the subcontractor who will be the subcontractor on the job for each particular trade or subdivision of the work and value of subcontractor's work that exceeds **five (5%) percent & one (1%) percent** of the total bid amount and will state the firm name, license number, principal location of the mill, shop, or office, and contact information of each. **Prime contractor shall list all work to be self-performed.**

### List of Subcontractors

Division of Work or Trade	Firm or Contractor	License Number	Location of Mill or Office	Phone/Fax

*Certified By:* \_\_\_\_\_

ACCOMPANYING THE PROPOSAL IS: \_\_\_\_\_ *(Insert the words "cash", "Bidder's bond", or "certified check", as the case may be, in an amount equal to at least five (5%) percent of the total of the bid) payable to **Minden Gardnerville Sanitation District.***

The undersigned deposits the above-named security as a proposal guarantee and agrees that it shall be forfeited to the OWNER as liquidated damages in case this proposal is accepted by the OWNER, and the undersigned fails to execute a contract with the OWNER as specified in the contract documents accompanied by the required bonds and certificate of insurance coverage. Should the OWNER be required to engage the services of an attorney in connection with the enforcement of this bid, Bidder promises to pay OWNER's reasonable attorney's fees incurred with or without suit.

The Bidder agrees that he will not withdraw his bid for a period of thirty (30) days after the time set for the opening thereof.

The names of all persons interested in the foregoing proposals as Principals are as follows:

*(IMPORTANT NOTICE - If Bidder or other interested person is a corporation, state legal name of corporation; also names of the president, secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Bidder or other interested person is an individual, state first and last names in full).*

\_\_\_\_\_  
(Name and Title)

\_\_\_\_\_  
(Name and Title)

\_\_\_\_\_  
(Name and Title)

\_\_\_\_\_  
(Name and Title)

**Dated:** \_\_\_\_\_, 2020

\_\_\_\_\_  
(Bidder)

(SEAL) If Bidder is a corporation,

**By:** \_\_\_\_\_

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

**Corporation organized under the laws of the State of:** \_\_\_\_\_

**Nevada Contractor's License Number:** \_\_\_\_\_ **Class:** \_\_\_\_\_

**Expiration Date:** \_\_\_\_\_

**Licensing Limit:** \_\_\_\_\_

\_\_\_\_\_

**NOTE:** If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign contracts in behalf of the corporation; if Bidder is a co-partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contract in behalf of the co-partnership, and if the Bidder is an individual, his signature shall be placed above; if a special partnership, the names of the general partners and special partners.

# BID FORM: BID BOND

## Minden Gardnerville Sanitation District Digester No. 2 Cover Replacement

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 and Include Location):

BOND

Bond Number:

Date (Not earlier than Bid due 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**

\_\_\_\_\_  
Bidder'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

Note: Above 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 any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder who submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:

- 1.1 If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond, and
- 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
- 1.3 Recovery 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 thirty (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 one hundred twenty (120) days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to thirty (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 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.



**AFFIDAVIT CERTIFYING COMPLIANCE WITH  
NRS 338.0117**

**State of** \_\_\_\_\_ )

**County of** \_\_\_\_\_ )

I, \_\_\_\_\_

do hereby swear under penalty of perjury that the assertions of this affidavit are true.

1. I am an agent for the CONTRACTOR duly authorized to sign documents binding the CONTRACTOR to the provisions herein.
2. I hereby certify that for the duration of the project ("Digester No. 2 Cover Replacement") the following conditions will be adhered to in order to obtain bidder's preference on the project.
  - a. A least fifty (50%) percent of the workers employed on the public work, including, without limitation, and employees of the CONTRACTOR, applicant, or design-build team and of any subcontractor engaged on the public work, will hold a valid driver's license or identification card issued by the Nevada Department of Motor Vehicles of the State of Nevada;
  - b. All vehicles used primarily for the public work will be:
    - i. Registered and partially apportioned to Nevada pursuant to the International Registration Plan, as adopted by the Department of Motor Vehicles pursuant to NRS 706.826; or
    - ii. Registered in the State of Nevada;
  - c. The CONTRACTOR, applicant, or design-build team and any subcontractor engaged on the public work will maintain and make available for inspection within Nevada his/her records concerning payroll relating to the public work.
3. I hereby certify that I understand the penalties set forth in NRS 338.0117 for failure to adhere to the requirements of NRS 338.0117 and that said penalties are incorporated within the agreement with the Minden Gardnerville Sanitation District if awarded the project and receiving preference in bidding.

**Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2017.**

Affiant's Signature \_\_\_\_\_

Affiant's printed name \_\_\_\_\_

Company/Contractor \_\_\_\_\_

Street Address \_\_\_\_\_

City, State, ZIP \_\_\_\_\_

Telephone Number \_\_\_\_\_

**Subscribed and sworn to before me**

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

Notary Public Signature \_\_\_\_\_ Notary Stamp



# AGREEMENT

---

THIS AGREEMENT is dated as of the \_\_\_\_\_ day of \_\_\_\_\_ in the year **20\_\_**, (the "effective date of the Agreement" as that term is used in the Contract Documents) by and between the:

**Minden Gardnerville Sanitation District Board of Trustees**  
(hereinafter called OWNER)  
— and —

\_\_\_\_\_  
(hereinafter called CONTRACTOR)

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

## **Article 1. WORK**

CONTRACTOR shall complete all WORK as specified or indicated in the Contract Documents.

CONTRACTOR will furnish all material and will perform all of the work for:

**Minden Garnerville Sanitation District  
DIGESTER NO. 2 COVER REPLACEMENT**

In accordance with the plans and specifications and other contract documents therefore.

## **Article 2. ENGINEER**

The Project has been designed by HDR ENGINEERING, INC. who is hereinafter called ENGINEER and who will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the WORK in accordance with the Contract Documents. All matters related to fulfilling the requirements of the Work and the Contract documents shall be directed to and coordinated with the ENGINEER. All submittals, approvals, and directives shall be directed to, or acquired from the ENGINEER.

## **Article 3. CONTRACT TIME**

The contract time beginning shall be that listed in paragraph 14 of the Information to Bidders. The CONTRACTOR shall notify the Minden Gardnerville Sanitation District at least forty eight (48) hours prior to commencing work and shall arrange for a pre-construction conference.

3.1 CONTRACTOR shall arrange a pre-construction conference, in accordance with paragraph 2.04 of the General Conditions, at which time CONTRACTOR shall deliver to the ENGINEER the schedules called for in paragraph 2.05 of the General Conditions.

Insurance certificates shall be submitted to the ENGINEER and approved prior to mobilization and/or the commencement of any work. The Contract Time shall commence on the date on the Notice to Proceed.

3.2 The WORK shall be substantially completed within **two hundred seventy (270)** calendar days from the date of the Notice to Proceed.

3.3 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence in this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in paragraph 3.2 above, plus any extensions thereof allowed in accordance with Article 11 of the General Conditions. They 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 substantially complete on time. Accordingly, instead of requiring such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as penalty) CONTRACTOR shall pay OWNER **two hundred (\$200.00)** dollars for each day that expires after the time specified in paragraph 3.2 for substantial completion until the Work is substantially complete.

#### **Article 4. CONTRACT PRICE**

4.1 OWNER shall pay CONTRACTOR for performance of the WORK in accordance with the Contract Documents in current funds as follows:

On the basis of unit prices all as stipulated in the Bid Form attached to this Agreement and made a part hereof.

4.2 CONTRACTOR expressly agrees that:

The unit amounts in the Bid Form are based on and include the installed price for each item listed therein.

A. The unit amounts in the Bid Form are based on and include furnishing all materials and labor for each item listed therein.

B. The installed price stated in the respective item includes the preparation and furnishing of shop drawings showing all modifications (if any) necessary to accommodate such equipment.

C. The installed price covers a complete operating installation including necessary changes and/or additions in structure, piping, paving, laterals and accessories or other work necessary to accommodate the selected equipment and materials.

D. All items of equipment fully comply with the requirements of the Plans and Specifications.

E. CONTRACTOR agrees that this Agreement will not imply acceptance by the OWNER of the equipment and/or materials furnished by the manufacturers or suppliers listed in the Bid Form, unless shop drawings have been reviewed, with no exception taken, by the ENGINEER. CONTRACTOR declares that equipment and/or

materials furnished by the manufacturers or suppliers listed in the Bid Form will comply with the Contract Document requirements.

## **Article 5. PAYMENT PROCEDURES**

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, except as modified herein.

5.1 Progress Payment applications shall be submitted by CONTRACTOR for payment according to a monthly schedule agreed upon between the CONTRACTOR and OWNER. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, following the regularly scheduled monthly meeting of the Minden Gardnerville Sanitation District Board of Trustees, during construction, as provided below.

5.1.1 Prior to Substantial Completion, progress payments will be in an amount not to exceed ninety-five (95%) percent of the Work completed and ninety-five (95%) percent of materials and equipment not incorporated in the Work but delivered and suitably stored, less in each case the aggregate of payments previously made. The OWNER at any time, however, after fifty (50%) percent of the Work has been completed, if he finds that satisfactory progress is being made, may reduce retention of two-and-one-half (2.5%) percent on the current and remaining estimates. After fifty (50%) percent of the project is completed, The OWNER may, at his discretion, refund all retainage if subcontractors and suppliers agree, in writing, to remove their claim to file a lien.

5.1.2 As provided in NRS 338.160.3, except as otherwise provided in this subsection the public body shall pay to the CONTRACTOR at the end of each quarter the interest earned on the amount withheld under the contract during the quarter. The rate of interest to be paid must be the same as that earned during the quarter from the investment of money in the general fund of the public body. If the amount due to CONTRACTOR pursuant to this subsection for any quarter is less than five hundred (\$500.00) dollars the public body may hold the interest until;

- (a) The end of a subsequent quarter after which the amount of interest is five hundred (\$500.00) dollars or more; or,
- (b) The end of the fourth consecutive quarter for which no interest has been paid to the CONTRACTOR; or,
- (c) The amount withheld under the CONTRACTOR is due pursuant to subsection 4, whichever occurs first.

5.1.3 Except as provided in subsection 5, the amount withheld under any such contract is due within a reasonable time following the filing of a Notice of Completion as provided in NRS 108.228 or upon other proper evidence of satisfactory completion of the contract.

5.1.4 If the Labor Commissioner has reason to believe that an employee has a valid and enforceable claim for wages against CONTRACTOR, he may require the public body to withhold from any payment due the CONTRACTOR under this section

and pay the Labor Commissioner instead, an amount equal to the amount claimed by the employee. This amount must be paid to the employee if the claim is resolved in his favor, otherwise it must be returned to the public body for payment to the CONTRACTOR.

## **Article 6. CONTRACTOR'S REPRESENTATIONS**

In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations

6.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, work, locality and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.2 CONTRACTOR has studied carefully all reports of investigation and tests of subsurface and latent physical conditions at the site otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.

6.3 CONTRACTOR has made or caused to be made examination, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 6.2 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by CONTRACTOR for such purposes.

6.4 CONTRACTOR has examined the site and locality where the Work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as CONTRACTOR deems necessary.

6.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

6.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

## **Article 7. CONTRACT DOCUMENTS**

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR are attached to the Agreement, made a part hereof and consist of the following:

7.1 Notice to CONTRACTORS and Information to Bidders.

7.2 Bid Form Proposal and Addenda \_\_\_ to \_\_\_ inclusive.

- 7.3 This Agreement.
- 7.4. Performance and Payment Bonds identified as Exhibits A and B, respectively.
- 7.5 Notice to Proceed identified as Exhibit C.
- 7.6 Standard General Conditions of the Construction Contract, EJCDC Document C-700 (2018 Edition) identified as Exhibit D.
- 7.7 Supplemental General Conditions identified as Exhibit E.
- 7.8 Special Conditions identified as Exhibit F.
- 7.9 Technical Specifications identified as Exhibit G.
- 7.10 Design drawings consisting of Sheets 1 through \_\_\_ inclusive, with each bearing the following general title:

**Minden Gardnerville Sanitation District  
DIGESTER NO. 2 COVER REPLACEMENT PROJECT**

- 7.11 Any modification, including executed Change Orders, duly delivered after execution of this Agreement.

There are no Contract Documents other than those listed above in Articles 7.1 through 7.11 inclusive. The Contract Documents may only be altered, amended or repealed by a modification (as defined in Article 11 of the General Conditions).

**Article 8. MISCELLANEOUS**

8.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

8.2 No assignments by CONTRACTOR of any rights under or interests in the Contract Documents will be binding on OWNER without the written consent of OWNER; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without 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.

8.3 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives, and other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.

8.4 If any legal action is brought between the parties with respect to this Agreement, the prevailing party in any such action shall recover reasonable attorney's fees and costs of suit incurred in such action, in addition to any other relief to which such party may be entitled.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR.

**OWNER:**

***Minden Gardnerville Sanitation District***

*By:*

*(Corporate Seal)*

**CONTRACTOR:**

*By:*

*(Corporate Seal)*

*Attest:*

*Address for giving notices:*

***Minden Gardnerville Sanitation District***

***1790 Highway 395***

***Minden, Nevada 89423***

*Attest:*

*Address for giving notices:*

*License No.:*

*Agent for service of process:*

# EXHIBIT A

## PERFORMANCE BOND

---

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

CONTRACTOR (Name and Address):

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

OWNER (Name and Address):

### CONTRACT

Effective Date of Agreement:

Amount:

Description (Name and Location):

### BOND

Bond Number:

Date (Not earlier than Effective Date of Agreement):

Amount:

Modifications to this Bond Form:

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

\_\_\_\_\_  
(Seal)

Contractor's Name and Corporate Seal

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

By:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

Attest:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

By:

\_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

Attest:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

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

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.

2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:

- 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than fifteen (15) days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
- 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than twenty (20) days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
- 2.3 Owner has agreed to pay the Balance of the Contract Price to:
  - 2.3.1 Surety in accordance with the terms of the Contract; or
  - 2.3.2 Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.

3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:

- 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
- 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
- 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
- 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
  - 3.4.1 After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefore to Owner; or
  - 3.4.2 Deny liability in whole or in part and notify Owner citing reasons therefor.

4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond fifteen (15) days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds



as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the 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 Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. 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 (2) years after Contractor Default or within two (2) years after Contractor ceased working or within two (2) years after 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 period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

# EXHIBIT B

## PAYMENT BOND

---

### PAYMENT BOND

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

CONTRACTOR (*Name and Address*):

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

OWNER (*Name and Address*):

#### CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

#### BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

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

#### SURETY

\_\_\_\_\_  
Contractor'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: Provide execution by additional parties, such as joint venturers, if necessary.*

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2 Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within thirty (30) days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above thirty (30) days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one (1) year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, 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 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.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

## 15. Definitions

- 15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and 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.
- 15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

# EXHIBIT C

## NOTICE TO PROCEED

---

Dated: \_\_\_\_\_, 20\_\_

TO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ENGINEER'S  
PROJECT  
NO.:

\_\_\_\_\_

PWP No.:

DO-20 - \_\_\_\_\_

PROJECT:

Digester No. 2 Cover Replacement

CONTRACT  
FOR:

XXXXXXXX

You are notified that the Contract Time under the above contract will commence to run as of \_\_\_\_\_. By that date, you are to start performing the Work and your other obligations under the Contract Documents.

The date of Substantial Completion is: \_\_\_\_\_.

The date of Final Completion is: \_\_\_\_\_.

Before you may start any Work at the site, you must deliver to the OWNER (with copies to ENGINEER) certificates of insurance that are required to be purchased and maintained in accordance with the Contract Documents.

Also, before you may start any Work at the site, you must:

- 1) Notify ENGINEER a minimum of forty-eight (48) hours in advance of beginning construction.

\_\_\_\_\_  
(Authorized Signature)





EXHIBIT D  
GENERAL CONDITIONS OF THE CONSTRUCTION  
CONTRACT

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# STANDARD GENERAL CONDITIONS

OF THE CONSTRUCTION CONTRACT

## TABLE OF CONTENTS

	Page
Article 1—Definitions and Terminology.....	1
1.01 Defined Terms.....	1
1.02 Terminology .....	6
Article 2—Preliminary Matters .....	7
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance.....	7
2.02 Copies of Documents .....	7
2.03 Before Starting Construction .....	7
2.04 Preconstruction Conference; Designation of Authorized Representatives .....	8
2.05 Acceptance of Schedules .....	8
2.06 Electronic Transmittals .....	8
Article 3—Contract Documents: Intent, Requirements, Reuse.....	9
3.01 Intent.....	9
3.02 Reference Standards .....	9
3.03 Reporting and Resolving Discrepancies .....	10
3.04 Requirements of the Contract Documents .....	10
3.05 Reuse of Documents .....	11
Article 4—Commencement and Progress of the Work .....	11
4.01 Commencement of Contract Times; Notice to Proceed.....	11
4.02 Starting the Work.....	11
4.03 Reference Points .....	11
4.04 Progress Schedule .....	12
4.05 Delays in Contractor’s Progress .....	12
Article 5—Site; Subsurface and Physical Conditions; Hazardous Environmental Conditions .....	13
5.01 Availability of Lands .....	13
5.02 Use of Site and Other Areas.....	14
5.03 Subsurface and Physical Conditions.....	15
5.04 Differing Subsurface or Physical Conditions .....	16
5.05 Underground Facilities .....	17

5.06	Hazardous Environmental Conditions at Site .....	19
Article 6—Bonds and Insurance.....		21
6.01	Performance, Payment, and Other Bonds .....	21
6.02	Insurance—General Provisions .....	22
6.03	Contractor’s Insurance .....	24
6.04	Builder’s Risk and Other Property Insurance .....	25
6.05	Property Losses; Subrogation .....	25
6.06	Receipt and Application of Property Insurance Proceeds .....	27
Article 7—Contractor’s Responsibilities .....		27
7.01	Contractor’s Means and Methods of Construction .....	27
7.02	Supervision and Superintendence .....	27
7.03	Labor; Working Hours .....	27
7.04	Services, Materials, and Equipment .....	28
7.05	“Or Equals” .....	28
7.06	Substitutes .....	29
7.07	Concerning Subcontractors and Suppliers.....	31
7.08	Patent Fees and Royalties.....	32
7.09	Permits .....	33
7.10	Taxes .....	33
7.11	Laws and Regulations.....	33
7.12	Record Documents.....	33
7.13	Safety and Protection.....	34
7.14	Hazard Communication Programs .....	35
7.15	Emergencies .....	35
7.16	Submittals .....	35
7.17	Contractor’s General Warranty and Guarantee .....	38
7.18	Indemnification .....	39
7.19	Delegation of Professional Design Services .....	39
Article 8—Other Work at the Site.....		40
8.01	Other Work .....	40
8.02	Coordination .....	41
8.03	Legal Relationships.....	41
Article 9—Owner’s Responsibilities .....		42

9.01	Communications to Contractor .....	42
9.02	Replacement of Engineer .....	42
9.03	Furnish Data .....	42
9.04	Pay When Due .....	42
9.05	Lands and Easements; Reports, Tests, and Drawings .....	43
9.06	Insurance .....	43
9.07	Change Orders .....	43
9.08	Inspections, Tests, and Approvals .....	43
9.09	Limitations on Owner's Responsibilities .....	43
9.10	Undisclosed Hazardous Environmental Condition .....	43
9.11	Evidence of Financial Arrangements .....	43
9.12	Safety Programs .....	43
Article 10—Engineer's Status During Construction .....		44
10.01	Owner's Representative .....	44
10.02	Visits to Site .....	44
10.03	Resident Project Representative .....	44
10.04	Engineer's Authority .....	44
10.05	Determinations for Unit Price Work .....	45
10.06	Decisions on Requirements of Contract Documents and Acceptability of Work .....	45
10.07	Limitations on Engineer's Authority and Responsibilities .....	45
10.08	Compliance with Safety Program .....	45
Article 11—Changes to the Contract .....		46
11.01	Amending and Supplementing the Contract .....	46
11.02	Change Orders .....	46
11.03	Work Change Directives .....	46
11.04	Field Orders .....	47
11.05	Owner-Authorized Changes in the Work .....	47
11.06	Unauthorized Changes in the Work .....	47
11.07	Change of Contract Price .....	47
11.08	Change of Contract Times .....	49
11.09	Change Proposals .....	49
11.10	Notification to Surety .....	50
Article 12—Claims .....		50

12.01	Claims .....	50
Article 13—Cost of the Work; Allowances; Unit Price Work .....		51
13.01	Cost of the Work .....	51
13.02	Allowances .....	55
13.03	Unit Price Work .....	55
Article 14—Tests and Inspections; Correction, Removal, or Acceptance of Defective Work .....		56
14.01	Access to Work.....	56
14.02	Tests, Inspections, and Approvals.....	56
14.03	Defective Work .....	57
14.04	Acceptance of Defective Work.....	58
14.05	Uncovering Work .....	58
14.06	Owner May Stop the Work .....	58
14.07	Owner May Correct Defective Work.....	59
Article 15—Payments to Contractor; Set-Offs; Completion; Correction Period .....		59
15.01	Progress Payments .....	59
15.02	Contractor’s Warranty of Title .....	62
15.03	Substantial Completion.....	62
15.04	Partial Use or Occupancy .....	63
15.05	Final Inspection .....	64
15.06	Final Payment.....	64
15.07	Waiver of Claims .....	65
15.08	Correction Period .....	66
Article 16—Suspension of Work and Termination .....		67
16.01	Owner May Suspend Work .....	67
16.02	Owner May Terminate for Cause.....	67
16.03	Owner May Terminate for Convenience.....	68
16.04	Contractor May Stop Work or Terminate .....	68
Article 17—Final Resolution of Disputes .....		69
17.01	Methods and Procedures.....	69
Article 18—Miscellaneous .....		69
18.01	Giving Notice .....	69
18.02	Computation of Times .....	69
18.03	Cumulative Remedies .....	70

18.04	Limitation of Damages .....	70
18.05	No Waiver .....	70
18.06	Survival of Obligations .....	70
18.07	Controlling Law .....	70
18.08	Assignment of Contract .....	70
18.09	Successors and Assigns .....	70
18.10	Headings.....	70





# STANDARD GENERAL CONDITIONS

## OF THE CONSTRUCTION CONTRACT

### ARTICLE 1—DEFINITIONS AND TERMINOLOGY

#### 1.01 *Defined Terms*

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

requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

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

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

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

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

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

## 1.02 Terminology

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

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

## **ARTICLE 2—PRELIMINARY MATTERS**

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

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

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

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

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

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

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

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

2.05 *Acceptance of Schedules*

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

2.06 *Electronic Transmittals*

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



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

### 3.01 *Intent*

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

### 3.02 *Reference Standards*

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

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

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies*

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

#### B. *Resolving Discrepancies*

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

### 3.04 *Requirements of the Contract Documents*

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

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

### 3.05 *Reuse of Documents*

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

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

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

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

### 4.02 *Starting the Work*

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

### 4.03 *Reference Points*

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

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

#### 4.04 *Progress Schedule*

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

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

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

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

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

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

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

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

## 5.02 *Use of Site and Other Areas*

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

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

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

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

### 5.03 *Subsurface and Physical Conditions*

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

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

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

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

- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;
  2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
  3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
  4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

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

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

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

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



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

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

#### 5.05 *Underground Facilities*

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

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
  4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
  5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
  2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
  3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
  4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown

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

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

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

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

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

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

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

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

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

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

## **ARTICLE 6—BONDS AND INSURANCE**

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

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

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

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

#### 6.02 *Insurance—General Provisions*

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

Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

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

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

6.03 *Contractor's Insurance*

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



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

6.04 *Builder's Risk and Other Property Insurance*

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

6.05 *Property Losses; Subrogation*

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

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

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

6.06 *Receipt and Application of Property Insurance Proceeds*

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

**ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES**

7.01 *Contractor's Means and Methods of Construction*

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

7.02 *Supervision and Superintendence*

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

7.03 *Labor; Working Hours*

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

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

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

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

#### 7.05 *"Or Equals"*

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

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

#### 7.06 Substitutes

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

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

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

7.07 *Concerning Subcontractors and Suppliers*

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

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

7.08 *Patent Fees and Royalties*

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



#### 7.09 *Permits*

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

#### 7.10 *Taxes*

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

#### 7.11 *Laws and Regulations*

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

#### 7.12 *Record Documents*

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

### 7.13 *Safety and Protection*

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

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

7.14 *Hazard Communication Programs*

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

7.15 *Emergencies*

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

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

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

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

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

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

*D. Resubmittal Procedures for Shop Drawings and Samples*

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

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

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

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

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

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

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

**7.18 Indemnification**

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

**7.19 Delegation of Professional Design Services**

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

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

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

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

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



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

#### 8.02 *Coordination*

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

#### 8.03 *Legal Relationships*

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

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

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

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

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

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

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

### **9.03    *Furnish Data***

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

### **9.04    *Pay When Due***

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

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

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

9.06 *Insurance*

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

9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

## ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

### 10.01 *Owner's Representative*

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

### 10.02 *Visits to Site*

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

### 10.03 *Resident Project Representative*

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

### 10.04 *Engineer's Authority*

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

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

**10.05 *Determinations for Unit Price Work***

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

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

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

**10.07 *Limitations on Engineer's Authority and Responsibilities***

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

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

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

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

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

**10.08 *Compliance with Safety Program***

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

## ARTICLE 11—CHANGES TO THE CONTRACT

### 11.01 *Amending and Supplementing the Contract*

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

### 11.02 *Change Orders*

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

### 11.03 *Work Change Directives*

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

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

#### 11.04 *Field Orders*

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

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

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

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

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

#### 11.07 *Change of Contract Price*

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

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



#### 11.08 *Change of Contract Times*

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

#### 11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.
- B. *Change Proposal Procedures*
  - 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
  - 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
    - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
    - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

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

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

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

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

#### 11.10 *Notification to Surety*

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

### ARTICLE 12—CLAIMS

#### 12.01 *Claims*

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

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

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

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

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

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

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

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

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

c. *Construction Equipment Rental*

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.
  - 2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.
  - 3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder's risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

- g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:
  - 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
  - 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
  - 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  - 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  - 5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  - 6. Expenses incurred in preparing and advancing Claims.
  - 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee*
  - 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
    - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
    - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
      - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
      - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.
  - 2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change

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

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

#### 13.02 Allowances

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

#### 13.03 Unit Price Work

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

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

E. *Adjustments in Unit Price*

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

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

14.01 *Access to Work*

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

14.02 *Tests, Inspections, and Approvals*

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



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

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

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

#### 14.03 *Defective Work*

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

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

#### 14.04 *Acceptance of Defective Work*

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

#### 14.05 *Uncovering Work*

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

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

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

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

**14.07 Owner May Correct Defective Work**

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

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

**15.01 Progress Payments**

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

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

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

*C. Review of Applications*

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

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

**D. *Payment Becomes Due***

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

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

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

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

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

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

#### 15.03 *Substantial Completion*

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

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

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

#### 15.04 *Partial Use or Occupancy*

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

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

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

#### 15.05 *Final Inspection*

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

#### 15.06 *Final Payment*

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

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



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

#### 15.07 *Waiver of Claims*

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

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

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

#### 15.08 *Correction Period*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **ARTICLE 18—MISCELLANEOUS**

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

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

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

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

18.03 *Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Assignment of Contract*

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

18.09 *Successors and Assigns*

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

18.10 *Headings*

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

EXHIBIT E  
SUPPLEMENTARY CONDITIONS OF THE  
CONSTRUCTION CONTRACT

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# **SUPPLEMENTARY CONDITIONS**

OF THE CONSTRUCTION CONTRACT

## **TABLE OF CONTENTS**

	<b>Page</b>
Article 1 - Definitions and Terminology	1
Article 2 - Preliminary Matters	1
Article 3 - Contract Documents: Intent, Requirements, Reuse	2
Article 5 - Site, Subsurface and Physical Conditions, Hazardous Environmental Conditions	3
Article 6 - Bonds and Insurance	5
Article 7 - Contractor's Responsibilities	11
Article 8 - Other Work at the Site	22
Article 9 - Owner's Responsibilities	23
Article 10 - Engineer's Status During Construction	25
Article 11 - Amending the Contract Document; Changes in the Work	25
Article 12 - Claims	26
Article 13 - Cost of the Work; Allowances; Unit Price Work	26
Article 14 - Tests and Inspections; Correction, Removal, or Acceptance of Defective Work	27
Article 15 - Payments to Contractor, set Offs; Completions; Correction Period	28
Article 16 - Suspension of Work and Termination	29
Article 17 - Final Resolution of Disputes	31
Article 18 - Miscellaneous	32



# SUPPLEMENTARY CONDITIONS

## OF THE CONSTRUCTION CONTRACT

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

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

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

### ARTICLE 1—DEFINITIONS AND TERMINOLOGY

SC-1.01.A.16 Add the following to Paragraph 1.01.A.16:

When the Project is to be constructed under multiple direct Contracts awarded by the Owner, the term "Contractor" shall mean the appropriate prime contractor. Whenever a specific prime Contractor is referred to, terms such as "General Contractor", "Electrical Contractor", "Plumbing Contractor", "HVAC Contractor", or other appropriate Contract-indicating term will be used.

SC-1.01.A.40 Add the following to Paragraph 1.01.A.40:

Trucking, shipping, delivery firms, consultants, and entities performing testing or inspection retained by Contractor or any Subcontractor are considered to be Subcontractors.

SC-1.01.A.44 Add the following to Paragraph 1.01.A.44:

Entities that rent construction equipment or machinery, but are not incorporated into the Work, are considered to be Suppliers. If such rental entity furnishes both equipment and one or more personnel to operate and maintain the equipment, such entity is a Subcontractor.

### ARTICLE 2—PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

## 2.02 *Copies of Documents*

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

- A. Owner shall furnish to Contractor five (5) paper copies of conformed Contract Documents incorporating and integrating all Addenda and amendments, if any, negotiated prior to the Effective Date of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional paper copies of the conformed Contract Documents will be furnished upon request at the cost of reproduction.

## 2.03 *Before Starting Construction*

SC-2.03 Add the following new paragraph immediately after paragraph 2.03.A.3.

- B. Schedule: the Contractor, in consultation with Owner and Engineer, will develop a schedule acceptable to the Owner to provide Contractor operation continuity during operations. This plan will address measures necessary to minimize interruptions and/or maintain optimum working conditions during construction.
- C. contractor will need to identify all utility and potential utility conflicts ahead of construction to keep work moving at a reasonable pace and define problem areas in sufficient time to not impact adversely the construction schedule to the greatest degree possible. This may include but is not limited to "pot-holing".

## 2.06 *Electronic Transmittals*

SC-2.06 Delete in its entirety Paragraph 2.06.B and replace with the following new paragraph:

- B. *Electronic Document Protocol:* Comply with Specifications Section 01 31 26 – Electronic Communication Protocols.

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

## 3.01 *Intent*

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

SC-3.01 Add the following new paragraphs immediately after Paragraph 3.01.E:

- F. The Specifications and other verbal components of the Contract Documents may vary in form, format, and style. Some Specification sections are written in varying degrees of streamlined or declarative style and some Specifications sections may, in comparison, employ a more-narrative style. Omissions of such words and phrases as "Contractor shall," "in conformity with," "as shown," or "as specified" are intentional in streamlined language in the Contract Documents. Omitted words and phrases are incorporated by inference. Similar types of provisions may appear in various parts of a Specifications section or elsewhere in the Contract Documents. Contractor shall not attempt to take advantage of any variation of form, format or style in Change Proposal(s) and Claim(s).
- G. Cross referencing of Specification sections in a Specifications section's heading "Related Sections includes, but are not necessarily limited to: "and elsewhere within each Specifications section is provided as an aid and convenience to Contractor. Contractor shall not rely on cross referencing indicated and is responsible for coordinating the entire Work and providing a complete Project whether or not cross referencing is provided in each Specifications section or whether or not cross referencing is complete.

### 3.03 *Reporting and Resolving Discrepancies*

SC-3.03 Add the following new paragraph immediately after paragraph 3.03.A.3:

4. In case of discrepancy, calculated dimensions will govern over scaled dimensions, Drawings will govern over Standard Specifications, and Construction Specifications will govern over both Drawings and Standard Specifications. The Contractor shall take no advantage of any apparent error or omission in the Drawings or Construction Specifications, and the Engineer will be permitted to make such corrections and interpretations as may be deemed necessary to fulfill the intent of the Contract Documents.

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

### 5.01 *Availability of Lands*

SC-5.01 Add the following new paragraphs immediately after paragraph 5.01.C:

- D. If corporate or private property interferes with the Work, Contractor shall notify, in writing, the owners of such property, advising them of the nature of the interference and shall arrange to cooperate with them for the protection or disposition of such property. Contractor shall furnish the Engineer with copies of such notifications and with copies of any agreements between the Contractor and the property owners concerning such protection or disposition.
- E. Contractor shall take all necessary precautions for the protection of corporate or private property, such as walls and foundations of buildings, vaults, underground structures of public utilities, underground drainage facilities, overhead structures of public utilities, trees, shrubbery, crops, and fences contiguous to the work, of which the Contract does not provide for removal. Contractor shall protect and carefully preserve all official survey monuments, property marks, section markers, and Geological Survey Monuments, or other similar monuments, until Owner, or an authorized Surveyor or agent has witnessed or otherwise referenced their location or relocation. Contractor shall notify the Engineer of the presence of any such survey or property monuments as soon as they are discovered.
- F. Contractor shall be responsible for the damage or destruction of property of any character resulting from neglect, misconduct, or omission in its manner or method of execution or the non-execution of the work, or caused by defective work or the use of unsatisfactory materials, and such responsibility shall not be released until the work shall have been completed and accepted and the requirements of the Construction Specifications complied with.
- G. Whenever public or private property is so damaged or destroyed, the Contractor shall at its own expense, restore such property to a condition equal to that existing before such damage or injury was done by repairing, rebuilding, or replacing it as may be directed, or the Contractor shall otherwise make good such damage or destruction in an acceptable manner. If the Contractor fails to do so, the Engineer may, after giving the Contractor notice in writing, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof shall be deducted from any compensation due, or which may become due, the Contractor under its Contract.

### 5.03 *Subsurface and Physical Conditions*

SC-5.03 Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

No reports of explorations or tests of subsurface conditions at or contiguous to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

### 5.05 *Underground Facilities*

SC-5.05 Add the following new paragraphs immediately after paragraph 5.05.E.3:

F. Contractor shall notify the following underground utility locating service at least two full working days prior to beginning work. Underground Services Alert 1-800-227-2600.

1. A List of the major public utilities servicing the work area follows. The list indicates the name and telephone number of the responsible authority of the various utilities which should be notified if conflicts or emergencies arise during the progress of the work.

**NV Energy**

875 E. Long  
Carson City, NV 89706  
(775) 834-2991

**Frontier Communications**

1520 Church Street  
Gardnerville, NV 89423  
(775) 782-0967

**Southwest Gas Corporation**

P.O. Box 1190  
Carson City, NV 89701  
(775) 882-2126

**Town of Minden**

1604 Esmeralda Avenue, Suite 101  
Minden, NV 89423  
(775) 782-5976

**Charter Communications**

1338 Centerville Lane  
Gardnerville, NV 89410  
(775) 783-8004

**Minden Gardnerville Sanitation District**

1790 Highway 395  
Minden, NV 89423  
(775) 782-3546

2. At points where the Contractor's operations are adjacent to public and private utilities, Contractor shall not commence work until the Contractor has made all arrangements necessary for the protection of utilities.
3. Contractor shall coordinate and cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.
4. The Contractor shall inform himself of the exact location of all conduits, ducts, cables, pipe systems, or other underground facilities, and shall protect all utilities encountered

in the process of construction. Any damages to underground facilities shall be immediately repaired by the Contractor at his own expense except for damage to utilities, in which case the Contractor shall immediately notify the proper utility. The Contractor shall be responsible for reimbursing said utility for any and all work required to repair or replace damaged plant facilities.

#### 5.06 *Hazardous Environmental Conditions*

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

4. The following table lists the reports known to Owner relating to Hazardous Environmental Conditions at or adjacent to the Site, and the Technical Data (if any) upon which Contractor may rely: [If there are no such reports, edit this paragraph to indicate that, and delete in the table.]

Report Title	Date of Report	Technical Data
		[Identify Technical Data]

### ARTICLE 6—BONDS AND INSURANCE

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

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

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

#### 6.02 *Insurance—General Provisions*

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

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

#### 6.03 *Contractor's Insurance*

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

- D. *Other Additional Insureds:* As a supplement to the provisions of Paragraph 6.03.C of the General Conditions, the commercial general liability, automobile liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies must include as additional insureds (in addition to Owner and Engineer) the following: [Here list by legal name (not

Project role or classification) other persons or entities to be included as additional insureds. See GC-6.03.C.]

- E. *Workers' Compensation and Employer's Liability:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance, including, as applicable, United States Longshoreman and Harbor Workers' Compensation Act, (from available sources, notwithstanding the jurisdictional requirement of Paragraph 6.02.B of the General Conditions).

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

- F. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against claims for:
1. damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees,
  2. damages insured by reasonably available personal injury liability coverage, and
  3. damages because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- G. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy must be written on a 1996 (or later) Insurance Services Organization, Inc. (ISO) commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage.
    - a. Such insurance must be maintained for three years after final payment.
    - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
  2. Blanket contractual liability coverage, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
  3. Severability of interests and no insured-versus-insured or cross-liability exclusions.



4. Underground, explosion, and collapse coverage.
  5. Personal injury coverage.
  6. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together). If Contractor demonstrates to Owner that the specified ISO endorsements are not commercially available, then Contractor may satisfy this requirement by providing equivalent endorsements.
  7. For design professional additional insureds, ISO Endorsement CG 20 32 07 04 "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- H. *Commercial General Liability—Excluded Content:* The commercial general liability insurance policy, including its coverages, endorsements, and incorporated provisions, must not include any of the following:
1. Any modification of the standard definition of "insured contract" (except to delete the railroad protective liability exclusion if Contractor is required to indemnify a railroad or others with respect to Work within 50 feet of railroad property).
  2. Any exclusion for water intrusion or water damage.
  3. Any provisions resulting in the erosion of insurance limits by defense costs other than those already incorporated in ISO form CG 00 01.
  4. Any exclusion of coverage relating to earth subsidence or movement.
  5. Any exclusion for the insured's vicarious liability, strict liability, or statutory liability (other than worker's compensation).
  6. Any limitation or exclusion based on the nature of Contractor's work.
  7. Any professional liability exclusion broader in effect than the most recent edition of ISO form CG 22 79.
- I. *Commercial General Liability—Minimum Policy Limits*

<b>Commercial General Liability</b>	<b>Policy limits of not less than:</b>
General Aggregate	\$2,000,000
Products—Completed Operations Aggregate	\$2,000,000
Personal and Advertising Injury	\$1,000,000
Bodily Injury and Property Damage—Each Occurrence	\$1,000,000

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

<b>Automobile Liability</b>	<b>Policy limits of not less than:</b>
<b>Bodily Injury</b>	
Each Person	\$1,000,000
Each Accident	\$1,000,000
<b>Property Damage</b>	
Each Accident	\$1,000,000

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

<b>Excess or Umbrella Liability</b>	<b>Policy limits of not less than:</b>
Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000

- L. *Using Umbrella or Excess Liability Insurance to Meet CGL and Other Policy Limit Requirements:* Contractor may meet the policy limits specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policy's policy limits and partial attribution of the policy limits of an umbrella or excess liability policy that is at least as broad in coverage as that of the underlying policy, as specified herein. If such umbrella or excess liability policy was required under this Contract, at a specified minimum policy limit, such umbrella or excess policy must retain a minimum limit of \$[specify amount] after accounting for partial attribution of its limits to underlying policies, as allowed above.

- M. *Other Required Insurance:* [Here list additional types and amounts of insurance that Contractor is required to carry; if none, delete this Paragraph M.]

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

SC-6.04 Supplement Paragraph 6.04 with the following provisions:

- F. *Builder's Risk Requirements:* The builder's risk insurance must:
1. be written on a builder's risk "all risk" policy form that at a minimum includes insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment stored and in transit, and must not exclude the coverage of the following risks: fire; windstorm; hail; flood; earthquake, volcanic activity, and other earth movement; lightning; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; and water damage (other than that caused by flood).

- a. Such policy will include an exception that results in coverage for ensuing losses from physical damage or loss with respect to any defective workmanship, methods, design, or materials exclusions.
  - b. 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 will be provided through other insurance policies acceptable to Owner and Contractor.
2. 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.
3. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of contractors, engineers, and architects).
4. 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). If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].
5. extend to cover damage or loss to insured property while in transit. If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].
6. allow for the waiver of the insurer's subrogation rights, as set forth in this Contract.
7. allow for partial occupancy or use by Owner by endorsement, and without cancellation or lapse of coverage.
8. include performance/hot testing and start-up, if applicable.
9. be maintained in effect until the Work is complete, as set forth in Paragraph 15.06.D of the General Conditions, or until written confirmation of Owner's procurement of property insurance following Substantial Completion, whichever occurs first.
10. include as named insureds the Owner, Contractor, Subcontractors (of every tier), and any other individuals or entities required by this Contract to be insured under such builder's risk policy. For purposes of Paragraphs 6.04, 6.05, and 6.06 of the General Conditions, and this and all other corresponding Supplementary Conditions, the parties required to be insured will be referred to collectively as "insureds." In addition to Owner, Contractor, and Subcontractors of every tier, include as insureds the following:
  - a. [Here list by legal name (not Project role or classification) other persons or entities to be insured on the builder's risk policy; see the "HDR Guidance Note" at the start of SC-6.04.F, above). It is generally recommended to list the insured's full legal/contractual name, address, contact person, telephone, and e-mail address.

Include only persons or entities that have property at the Site that is to be insured by the builder's risk insurance. If applicable, separately identify any mortgagee or lender required to be named as a loss payee.]

11. If debris removal in connection with repair or replacement of insured property is subject to a coverage sublimit, such sublimit will be a minimum of \$[amount].
12. In addition to the coverage sublimits stated above, the following coverages are also subject to sublimits, as follows:
  - a. [Here list a specific coverage, or cause of loss, that has been determined to be likely to be subject to a sublimit. If not applicable, then delete Paragraph SC-6.04.F.13 in its entirety.] If this coverage is subject to a sublimit, such sublimit will be a minimum of \$[amount].

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

- G. *Coverage for Completion Delays:* The builder's risk policy will include, for the benefit of Owner, loss of revenue and soft cost coverage for losses arising from delays in completion that result from covered physical losses or damage. Such coverage will include, without limitation, fixed expenses and debt service for a minimum of 12 months with a maximum deductible of 30 days, compensation for loss of net revenues, rental costs, and attorneys' fees and engineering or other consultants' fees, if not otherwise covered.

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

- H. *Builder's Risk and Other Property Insurance Deductibles:* The purchaser of any required builder's risk, installation floater, or other property insurance will be responsible for costs not covered because of the application of a policy deductible.
  1. The builder's risk policy (or if applicable the installation floater) will be subject to a deductible amount of not more than \$[number] for direct physical loss in any one occurrence.

6.06 *Receipt and Application of Insurance proceeds*

SC-6.06 Delete paragraph 6.06 in its entirety.

6.07 *Acceptance of Bonds and Insurance: Option to Replace*

SC-6.07 Add the following new paragraph immediately after paragraph 6.06.

- A. If Owner has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by Contractor in accordance with Article 6 on the basis of non-conformance with the Contract Documents, the Owner shall so notify the Contractor in writing within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.03. Contractor shall provide such additional information with respect to the insurance provided as the Owner may reasonably request. If Contractor does not purchase or maintain all of the bonds and insurance required of Contractor by the Contract Documents, Owner shall notify Contractor 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. Without prejudice to any other right or remedy, Owner may elect to obtain equivalent bonds or insurance to protect Owner's interest at the expense of the Contractor who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

## ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

### 7.02 *Supervision and Superintendence*

SC-7.02 Add the following to Paragraph 7.01, following Paragraph 7.02.B:

- C. Unless Owner otherwise agrees in writing, the superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

### 7.03 *Labor; Working Hours*

SC-7.03 Add the following new paragraphs immediately after paragraph 7.03.A.

1. In connection with the performance of work under this contract, Contractor agrees not to discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, or age. Such agreement shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Contractor further agrees to insert this provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials. Any breach of the foregoing provision by a Contractor shall constitute a material breach of contract.
2. The Contractor and each subcontractor shall keep or cause to be kept an accurate record showing the name, occupation and the actual per diem, wages and benefits paid to each workman employed by him in connection with the work. The record shall be open for inspection to the Owner's representatives at all reasonable hours and a copy of the record for each calendar month shall be sent to the Owner no later than ten (10) days after the end of the month.
3. The Contractor shall forfeit to the Owner not less than \$20.00 nor more than \$50.00 for each workman employed for each calendar day or portion thereof that each workman is paid less than the designated rate for any work done under the contract, by him or any subcontractor under him. All amounts forfeited pursuant to the provisions of this paragraph may be withheld and retained from payments to the Contractor due under the contract.

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

1. Regular working hours will be 9:00 AM to 4:30 PM.
2. Owner's legal holidays are:
  - a. New Year's Day - January 1st.
  - b. Martin Luther King Jr. Day - 3rd Monday in January.
  - c. President's Day - 3rd Monday in February.
  - d. Memorial Day - Last Monday in May.
  - e. Independence Day - July 4th.
  - f. Labor Day - 1st Monday in September.

- g. Nevada Day - Last Friday in October.
- h. Veteran's Day - November 11th.
- i. Thanksgiving Day - 4th Thursday in November.
- j. Family day - Friday following the 4th Thursday in November.
- k. Christmas Day - December 25th.

SC-7.03 Amend the first and second sentences of Paragraph 7.03.C to state "...all Work at the Site must be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday." The balance of Paragraph 7.03.C remains unchanged except for the foregoing.

SC-7.03 Delete Paragraph 7.03.C in its entirety, and insert the following:

- C. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

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

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

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

SC-7.04 Add the following new paragraph immediately after paragraph 7.904.A:

1. The Contractor shall not be required to maintain an office on the project site. However, Contractor shall advise the Owner of the location of the Project office, in which shall be kept project copies of the contract documents, project progress reports, etc., which shall be accessible to the Owner and Engineer during normal working hours.
2. If required, the Contractor shall enclose the project area with a fence adequate to protect the project and his own facilities against acts of theft, violence or vandalism. In locations where the probability of such acts is reasonably remote the Engineer may, in writing, waive this fencing requirement or limit it to the storage areas. Such action on the part of the Engineer shall in no way relieve the Contractor of his sole responsibility for protection of plant and material on the project site.
3. The Contractor shall coordinate any required system shutdowns with the Owner and Engineer. The Contractor shall notify the Owner and Engineer at least 48 hours in advance of any desired system shutdown.
4. Pipelines exposed to freezing shall be adequately protected from freezing by the Contractor until sufficiently backfilled to preclude freezing.

#### 7.07 *Concerning Subcontractors, Suppliers and Others*

SC-7.07 Add the following new paragraph immediately after paragraph 7.07.B:

SC-7.07 Add the following new paragraphs immediately after 7.07.M.

- N. The Contractor shall list in his bid the name of a subcontractor for each portion of the project that will be completed by a subcontractor.
- O. Contractor whose bid is accepted shall not substitute any person for a subcontractor who is named in the bid, unless:
  - 1. The awarding authority objects to the subcontractor, requests in writing a change in the subcontractor and pays any increase in costs resulting from the change;or
  - 2. The substitution is approved by the awarding authority or any authorized representative of the awarding authority. The substitution must be approved if the awarding authority or authorized representative of the awarding authority determines that:
    - a. The named subcontractor, after having a reasonable opportunity, fails or refuses to execute a written contract with the Contractor which was offered to the subcontractor with the same general terms that all other subcontractors on the project were offered;
    - b. The named subcontractor files for bankruptcy or becomes insolvent; or,
    - c. The named subcontractor fails or refuses to perform his subcontract within a reasonable time or is unable to furnish a performance bond and payment bond.

#### 7.11 *Laws and Regulations*

SC-7.11 Add the following new paragraphs immediately after paragraph 7.11.C:

- D. Contractor shall comply with all provisions of the federal Davis-Bacon Act. If the provisions of the Davis-Bacon Act apply, all employees of the Contractor must be paid not less than the wage which is the greater of the State and Federal wage determinations.
  - 1. If the Davis-Bacon Act applies, Contractor shall furnish to the Owner within seven days after payment date of the weekly payroll period, a statement of wages paid for each of the Contractor's employees or a payroll report. If the Davis-Bacon Act applies, Contractor shall furnish to the Owner within seven days after payment date of the weekly payroll period, a statement of wages paid for each of any subcontractor's employees or a payroll report for each subcontractor. The statement or report must include the Contractor's certification of compliance with the requirements of the supplemental condition. Contractor agrees that failure to comply with the portion of this supplemental condition requiring Contractor to furnish a certified statement of wages or payroll report will, in addition to any other retention allowed under this contract or under state or federal law, allow the Owner to unilaterally, without notice to Contractor, retain an amount of up to 10% from each progress payment until the Owner determines Contractor has complied with the provisions of this supplemental condition.
- E. Fair Employment Practices: In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, sexual orientation or age, including, with

limitation, with regard to employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including, without limitation, apprenticeship.

1. The Contractor further agrees to insert this provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials. Any violation of this provision by the Contractor shall constitute a material breach of Contract.
- F. If the provisions of this section are not complied with by the Contractor, the Contract shall be void, and any failure or refusal to comply with any of the provisions of this section shall render any such Contract void.
- G. NRS 338.147 (2007) Award of Contract; Determination of Best Bid. The statutes of NRS 338.147 shall apply. NRS 338.147 states:
1. Except as otherwise provided in subsection 10 and NRS 338.143 (2007), 338.1442 (2003) and 338.1446 (2003), a local government or its authorized representative shall award a contract for a public work for which the estimated cost exceeds \$250,000 to the contractor who submits the best bid.
  2. Except as otherwise provided in subsection 10 or limited by subsection 11, the lowest bid that is:
    - a. Submitted by a contractor who:
      - (1) Has been found to be a responsible and responsive contractor by the local government or its authorized representative; and
      - (2) At the time he submits his bid, has a valid certificate of eligibility to receive a preference in bidding on public works issued to the contractor by the State Contractors' Board pursuant to subsection 3 or 4; and
    - b. Not more than 5 percent higher than the bid submitted by the lowest responsive and responsible bidder who does not have, at the time he submits the bid, a valid certificate of eligibility to receive a preference in bidding on public works issued to him by the State Contractors' Board pursuant to subsection 3 or 4, shall be deemed to be the best bid for the purposes of this section.
  3. The State Contractors' Board shall issue a certificate of eligibility to receive a preference in bidding on public works to a general contractor who is licensed pursuant to the provisions of chapter 624 of NRS and submits to the Board an affidavit from a certified public accountant setting forth that the general contractor has, while licensed as a general contractor in this State:
    - a. Paid directly, on his own behalf:
      - (1) The sales and use taxes imposed pursuant to chapters 372, 374 and 377 of NRS on materials used for construction in this State, including, without limitation, construction that is undertaken or carried out on land within the boundaries of this State that is managed by the Federal Government or is on an Indian reservation or Indian colony, of not less than \$5,000 for each consecutive 12-month period for 60 months immediately preceding the submission of the affidavit from the certified public accountant;



- (2) The governmental services tax imposed pursuant to chapter 371 of NRS on the vehicles used in the operation of his business in this State of not less than \$5,000 for each consecutive 12-month period for 60 months immediately preceding the submission of the affidavit from the certified public accountant; or
    - (3) Any combination of such sales and use taxes and governmental services tax; or
  - b. Acquired, by purchase, inheritance, gift or transfer through a stock option plan, all the assets and liabilities of a viable, operating construction firm that possesses a:
    - (1) License as a general contractor pursuant to the provisions of chapter 624 of NRS; and
    - (2) Certificate of eligibility to receive a preference in bidding on public works.
- 4. The State Contractors' Board shall issue a certificate of eligibility to receive a preference in bidding on public works to a specialty contractor who is licensed pursuant to the provisions of chapter 624 of NRS and submits to the Board an affidavit from a certified public accountant setting forth that the specialty contractor has, while licensed as a specialty contractor in this State:
  - a. Paid directly, on his own behalf:
    - (1) The sales and use taxes pursuant to chapters 372, 374 and 377 of NRS on materials used for construction in this State, including, without limitation, construction that is undertaken or carried out on land within the boundaries of this State that is managed by the Federal Government or is on an Indian reservation or Indian colony, of not less than \$5,000 for each consecutive 12-month period for 60 months immediately preceding the submission of the affidavit from the certified public accountant;
    - (2) The governmental services tax imposed pursuant to chapter 371 of NRS on the vehicles used in the operation of his business in this State of not less than \$5,000 for each consecutive 12-month period for 60 months immediately preceding the submission of the affidavit from the certified public accountant; or
    - (3) Any combination of such sales and use taxes and governmental services tax; or
  - b. Acquired, by purchase, inheritance, gift or transfer through a stock option plan, all the assets and liabilities of a viable, operating construction firm that possesses a:
    - (1) License as a specialty contractor pursuant to the provisions of chapter 624 of NRS; and
    - (2) Certificate of eligibility to receive a preference in bidding on public works.
- 5. For the purposes of complying with the requirements set forth in paragraph (a) of subsection 3 and paragraph (a) of subsection 4, a contractor shall be deemed to have paid:

- a. Sales and use taxes and governmental services taxes paid in this State by an affiliate or parent company of the contractor, if the affiliate or parent company is also a general contractor or specialty contractor, as applicable; and
  - b. Sales and use taxes paid in this State by a joint venture in which the contractor is a participant, in proportion to the amount of interest the contractor has in the joint venture.
6. A contractor who has received a certificate of eligibility to receive a preference in bidding on public works from the State Contractors' Board pursuant to subsection 3 or 4 shall, at the time for the renewal of his contractor's license pursuant to NRS 624.283 (2007), submit to the Board an affidavit from a certified public accountant setting forth that the contractor has, during the immediately preceding 12 months, paid the taxes required pursuant to paragraph (a) of subsection 3 or paragraph (a) of subsection 4, as applicable, to maintain his eligibility to hold such a certificate.
7. A contractor who fails to submit an affidavit to the Board pursuant to subsection 6 ceases to be eligible to receive a preference in bidding on public works unless he reapplies for and receives a certificate of eligibility pursuant to subsection 3 or 4, as applicable.
8. If a contractor holds more than one contractor's license, he must submit a separate application for each license pursuant to which he wishes to qualify for a preference in bidding. Upon issuance, the certificate of eligibility to receive a preference in bidding on public works becomes part of the contractor's license for which the contractor submitted the application.
9. If a contractor who applies to the State Contractors' Board for a certificate of eligibility to receive a preference in bidding on public works submits false information to the Board regarding the required payment of taxes, the contractor is not eligible to receive a preference in bidding on public works for a period of 5 years after the date on which the Board becomes aware of the submission of the false information.
10. If any federal statute or regulation precludes the granting of federal assistance or reduces the amount of that assistance for a particular public work because of the provisions of subsection 2, those provisions do not apply insofar as their application would preclude or reduce federal assistance for that work.
11. If a bid is submitted by two or more contractors as a joint venture or by one of them as a joint venturer, the bid may be deemed a best bid only if both or all of the joint venturers separately meet the requirements of subsection 2.
12. The State Contractors' Board shall adopt regulations and may assess reasonable fees relating to the certification of contractors for a preference in bidding on public works.
13. A person or entity who believes that a contractor wrongfully holds a certificate of eligibility to receive a preference in bidding on public works may challenge the validity of the certificate by filing a written objection with the local government to which the contractor has submitted a bid on a contract for the construction of a public work. A written objection authorized pursuant to this subsection must:

- a. Set forth proof or substantiating evidence to support the belief of the person or entity that the contractor wrongfully holds a certificate of eligibility to receive a preference in bidding on public works; and
  - b. Be filed with the local government not later than 3 business days after the opening of the bids by the local government or its authorized representative.
- 14. If a local government receives a written objection pursuant to subsection 13, the local government shall determine whether the objection is accompanied by the proof or substantiating evidence required pursuant to paragraph (a) of that subsection. If the local government determines that the objection is not accompanied by the required proof or substantiating evidence, the local government shall dismiss the objection and the local government or its authorized representative may proceed immediately to award the contract. If the local government determines that the objection is accompanied by the required proof or substantiating evidence, the local government shall determine whether the contractor qualifies for the certificate pursuant to the provisions of this section and the local government or its authorized representative may proceed to award the contract accordingly.
- H. Hourly rate for vehicle and services of driver: NAC 338.135 (1997), where a truck or truck and trailer combination is rented or leased after April 22, 1969, by a CONTRACTOR or subcontractor on a public work, the hourly rate for the rental or lease of such truck or truck and trailer combination shall, when added to the prevailing rate of wages required by NRS 338.020 (2005) for the driver, not be less than the hourly rate for similar vehicles with a driver as such hourly rate appears in freight tariffs approved by the public service commission of Nevada for the area in which the public work is located.
- I. Historic Preservation. The CONTRACTOR's attention is directed to the following sections of the NRS concerning historic preservation:
  - 1. 383.121 (1993) Intergovernmental cooperation required.
    - a. All departments, commissions, boards and other agencies of the state and its political subdivisions shall cooperate with the office in order to salvage or preserve historic, prehistoric or paleoenvironmental evidence located on property owned or controlled by the United States, the State of Nevada or its political subdivisions.
    - b. When any agency of the state or its political subdivisions is preparing or has contracted to excavate or perform work of any kind on property owned or controlled by the United States, the State of Nevada or its political subdivisions which may endanger historic, prehistoric or paleoenvironmental evidence found on the property, or when any artifact, site or other historic or prehistoric evidence is discovered in the course of such excavation or work, the agency or the CONTRACTOR hired by the agency shall notify the office and cooperate with the office to the fullest extent practicable, within the appropriations available to the agency or political subdivision for that purpose, to preserve or permit study of such evidence before its destruction, displacement or removal.
    - c. The provisions of this section must be made known to all private Contractors performing such excavation or work for any agency of the state or its political subdivisions.
  - 2. 383.170 (1995) Procedure upon discovery of Indian burial site; permissible excavation.

- a. A person who disturbs the cairn or grave of a native Indian through inadvertence while engaged in a lawful activity such as construction, mining, logging or farming and any other person who discovers the cairn or grave of a native Indian shall immediately report the discovery and the location of the Indian burial site to the division. The division shall immediately consult with the Nevada Indian Commission and notify the appropriate Indian tribe. The Indian tribe may, with the permission of the landowner, inspect the site and recommend an appropriate means for the treatment and disposition of the site and all artifacts and human remains associated with the site.
- b. If the Indian burial site is located on private land and:
  - (1) The Indian tribe fails to make a recommendation within 48 hours after it receives notification pursuant to subsection 1; or
  - (2) The landowner rejects the recommendation and mediation conducted pursuant to NRS 383.160 (1993) fails to provide measures acceptable to the landowner, the landowner shall, at this own expense, re-inter with appropriate dignity all artifacts and human remains associated with the site in a location not subject to further disturbance.
- c. If the Indian burial site is located on public land and action is necessary to protect the burial site from immediate destruction, the division may cause a professional archeologist to excavate the site and remove all artifacts and human remains associated with the site for subsequent re-interment, following scientific study, under the supervision of the Indian tribe.
- d. Any other excavation of an Indian burial site may be conducted only:
  - (1) By a professional archeologist;
  - (2) After written notification to the administrator; and
  - (3) With the prior written consent of the appropriate Indian tribe. Failure of a tribe to respond to a request for permission within 60 days after its mailing by certified mail, return receipt requested, shall be deemed consent to the excavation.

All artifacts and human remains removed during such an excavation must, following scientific study, be re-interred under the supervision of the Indian tribe, except that the Indian tribe may, by explicit written consent, authorize the public display of a particular artifact. The archeologist, Indian tribe and landowner shall negotiate an agreement to determine who will pay the expenses related to the interment.

## 7.12 *Record Documents*

SC-7.12 Add the following new paragraphs immediately after paragraph 7.12.A:

- B. Contractor shall mark up one set of paper prints to show the actual conditions. They shall include all the information shown on the Contract Drawings and a record of all deviations, modifications, or changes from those Drawings, however minor, which were incorporated in the Work, all additional work not appearing on the Contract Drawings and all changes which are made after final inspection of the Contract Work. These marked prints shall be kept

current and available on the job site at all times. All changes from the Contract Drawings which are made in the Work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded, in red, as they occur by means of details and notes. No construction work shall be concealed until it has been inspected, approved, and recorded. The marked prints will be jointly inspected for accuracy and completeness by the Engineer's representative and a responsible representative of the Contractor prior to submission of the monthly pay estimate. Failure to keep the marked prints on a current basis shall be sufficient justification to suspend pay estimates. The drawings shall show the following information, but not be limited to:

1. The location of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions of permanent features.
  2. The location and identification of all surface installations within 100 feet of the construction work.
  3. The location and dimensions of any changes within the building or structure.
  4. Correct grade or alignment of roads, structures, or utilities if any changes were made from Contract Drawings.
  5. Correct elevations if changes were made in site grading.
  6. Changes in details or design or additional information obtained from working drawings specified to be prepared or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions or equipment foundations, etc.
  7. The topography and grades of all drainage installed or affected as a part of the Work.
  8. All changes or modifications which result from the final inspection.
- C. The marked prints shall be delivered to the Engineer at the time of final inspection for Engineer's review and approval. All approval and acceptance of the Record drawings shall be accomplished before final payment is made to the Contractor.

#### 7.13 *Safety and Protection*

SC-7.13 Insert the following after the second sentence of paragraph 7.13.G:

The following Owner safety programs are applicable to the Work:

1. Occupational Safety and Health Standards: Contractor's methods of construction and safety requirements, including but not limited to trench excavation and shoring where applicable, shall conform to the requirements of the Occupational Safety and Health Standards for the Construction Industry.
2. Power Lines: No equipment of any kind shall be used or permitted within such proximity to the conductors of Sierra Pacific Power Company's power lines as to be in violation of the safe working clearance prescribed by the National Electrical Safety Code.
3. If blasting or use of explosives is necessary for prosecution of Work, the Contractor shall provide the Engineer with a blasting plan in compliance with OSHA and all applicable

regulations, laws, ordinances, and requirements. Contractor shall exercise the utmost care not to endanger life or property. Contractor shall be responsible for all damage resulting from the use of explosives. Contractor shall notify each property owner and utility company having structures or facilities in proximity to the site of the work of its intentions to use explosives. Such notice shall be given sufficiently in advance to enable the utility companies to take such steps as they may deem necessary to protect their property from injury.

4. At least one fire extinguisher, rated at least 2A, shall be provided at or readily accessible to the jobsite.

#### 7.14 *Hazard Communication Programs*

SC-7.14 Add the following new paragraph immediately after Paragraph 7.14.A:

- B *Single Prime Contract*: Contractor shall be responsible for coordinating exchange of 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 and Regulations. Contractor shall provide a centralized location for the maintenance of the safety data sheets or other hazard communication information required to be made available by any employer on the Site. Location of the material safety data sheets or other hazard communication information shall be readily accessible to the employees of employers on the Site.

#### 7.16 *Shop Drawings and Samples*

SC-7.16 Delete paragraph 7.17.B.1.a in its entirety and insert in its place:

- a. Digital copies of all shop and working Drawings shall be submitted to the Engineer by or through the Contractor, who shall be responsible for obtaining shop and working Drawings from its subcontractors and returning approved Drawings to them. All Drawings shall be clearly marked with the names of the Project, Contractor, and building, equipment or structure to which the drawing applies, and shall be suitably numbered. Each shipment of Drawings shall be accompanied by a letter of transmittal giving a list of the drawing numbers and the names mentioned above. After review, one copy of the Drawings will be returned to the Contractor. If the Contractor wishes extra copies to be returned, he shall submit additional copies.

Add the following new paragraphs immediately after paragraph 7.16.B.1.b:

- c. Only Drawings which have been checked and corrected by the fabricator shall be submitted to the Contractor by his subcontractors and vendors. Prior to submitting Drawings to the Engineer, the Contractor shall check thoroughly all such Drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All Drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other Drawings shall be returned for correction.
- d. Should the Contractor submit for approval equipment that requires modifications to the structures, piping, layout, etc., detailed on the Drawings, Contractor shall also submit for approval details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications.

Add the following new paragraphs immediately after paragraph 7.16.B.2.b:

- c. Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples shall be furnished, packed, and shipped by the Contractor.
- d. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the date cast, the name of the Project, and location for which the material is intended and the name of the Contractor submitting the sample. To insure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

#### 7.18 *Indemnification*

SC-7.18 Add the following paragraphs immediately after paragraph 7.18.B:

- C. In case any action at law or suit in equity may or shall be brought against the Owner or any of its officers, agents, or employees for or on account of the failure, omission, or neglect of the Contractor or his subcontractors, employees, or agents, to do or perform any of the covenants, acts, matters, or things by this Contract undertaken to be done or performed by the Contractor or his subcontractors, employees, or agents, or from any injuries done to property or persons and caused by the negligence or alleged negligence of the Contractor or his subcontractors, employees, or agents, or in any other manner arising out of the performance of this Contract, then the Contractor shall immediately assume and take charge of the defense of such actions or suits in like manner and to all intents and purposes as if said actions or suits have been brought directly against the Contractor, and the Contractor shall also indemnify and save harmless the Owner, its officers, agents and employees from any and all loss, costs or damage whatever arising out of such actions or suits, in like manner and to all intents and purposes, as if said actions or suits had been brought directly against the Contractor and the Contractor shall also indemnify and save harmless the Owner, its officers, agents and employees from any and all loss, cost or damage whatever brought as aforesaid.

Add the following new paragraphs immediately after paragraph 7.19.G.

#### 7.20 *Quality Control and Sampling*

- A. All material shall be new and of the specified quality and equal to the approved samples, if samples have been submitted. All Work shall be done and completed in a thorough, workmanlike manner, notwithstanding any omission from these Specifications or from the Plans; and it shall be the duty of the Contractor to call the Engineer's attention to apparent errors or omissions and request instructions before proceeding with the Work. The Engineer may, by appropriate instructions, correct errors and supply omissions, which instructions shall be as binding upon the Contractor as though contained in the original Specifications or Plans.
- B. At the option of the Engineer, materials to be supplied under this Contract will be tested and/or inspected either at their place of origin or at the site of the Work. The Contractor shall give the Engineer written notification well in advance of actual readiness of materials to be tested and/or inspected at point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the material nor shall it preclude retesting or reinspection at the site of the Work.

1. Materials which will require testing and inspection at the place of origin shall not be shipped prior to such testing and inspection.
- C. The Contractor shall furnish such samples of materials as are requested by the Engineer, without charge. No material shall be used until it has been approved by the Engineer. Samples will be secured and tested whenever necessary to determine the quality of the material. All samples, and all test specimens that must be prepared at the jobsite, such as concrete test cylinders, shall be taken or prepared by the Engineer in the presence of and with the assistance of the Contractor.

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

### **8.02    *Coordination***

SC-8.02      Delete paragraph 8.02.A in its entirety and replace with the following:

- A. Owner intends to contract with others for the performance of other work on the Project at the Site.
  1. The Prime Contractor shall have overall authority and responsibility for coordination of the various contractors at the Site unless otherwise reserved by the Owner. The Prime Contractor shall be responsible for obtaining schedules from all subcontractors and shall be responsible for ensuring all parties are maintaining their schedules. The Prime Contractor shall be responsible for coordinating changes necessitated by unforeseen difficulties.

### **8.04    *Claims Between Contractors***

SC-8.04      Add the following new paragraph immediately after paragraph GC-8.03.C:

- A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, then Contractor (without involving Owner, Engineer, or construction coordinator) shall either (1) remedy the damage, (2) agree to compensate the other contractor for remedy of the damage, or (3) remedy the damage and attempt to settle with such other contractor by agreement, or otherwise resolve the dispute by arbitration or at law.
- B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to



impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.

- C. If Contractor is delayed at any time in performing or furnishing the Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 11. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

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

### **9.13    *Owner's Site Representative***

SC-9.13    Add the following new paragraphs immediately after Paragraph 9.12 of the General Conditions:

### **9.13    *Owner's Site Representative***

- A. Owner will furnish an "Owner's Site Representative" (OSR) 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 Resource Concepts, Inc. The authority and responsibilities of Owner's Site Representative follow:
  - 1. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
  - 2. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
  - 3. Liaison:
    - a. Serve as Engineer's liaison with Contractor, working principally through Contractor's authorized representative, assist in providing information regarding the intent of the Contract Documents.
    - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
    - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
  - 4. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
  - 5. Shop Drawings and Samples:
    - a. Record date of receipt of Samples and approved Shop Drawings.

- b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
- 6. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with OSR's recommendations, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
- 7. Review of Work and Rejection of Defective Work:
  - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
  - b. Report to Engineer whenever OSR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that OSR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- 8. Inspections, Tests, and System Startups:
  - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
  - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
- 9. Records:
  - a. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
  - b. Maintain records for use in preparing Project documentation.
- 10. Reports:
  - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.
  - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
  - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition.
- 11. Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment

requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

12. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

13. Completion:

- a. Participate in a Substantial Completion inspection, assist in the determination of Substantial Completion and the preparation of lists of items to be completed or corrected.
- b. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final list of items to be completed and deficiencies to be remedied.
- c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.

- B. The OSR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work unless such advice or directions are specifically required by the Contract Documents.
5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

## **ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION**

### **10.03 *Resident Project Representative***

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

1. On this Project, by agreement with Owner, the 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.

#### **ARTICLE 11 - AMENDING THE CONTRACT DOCUMENT; CHANGES IN THE WORK**

##### **11.07 Change of Contract Price**

SC-11.07 Contractor's Fee. Delete the semicolon at the end of GC 11.07.C.2.c, and add the following language:

When there are multiple levels (3 or more) of subcontractors, suppliers, and general contractors:

#### **ARTICLE 12 - CLAIMS**

##### **12.01 *Claims***

SC-12.01 Add the following new paragraph immediately after paragraph 12.01.G:

- H. Engineer's Action: Engineer will review each claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  1. Deny the claim in whole or in part;
  2. approve the claim; or.
  3. notify the parties that the Engineer is unable to resolve the claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the claim such notice shall be deemed a denial.
- I. In the event that Engineer does not take action on a claim within said 30 days, the claim shall be deemed denied.

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

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

SC-13.01 Delete Paragraph 13.01.B.6.c.1 in its entirety and insert the following in its place:

- c. Construction Equipment and Machinery:
  - 1) Rentals of all construction equipment and machinery, and the parts thereof 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.
  - 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the "Rental Rate Blue Book for Construction Equipment" or the "Rental Rate Blue Book for Older Construction Equipment". An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal

when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

Delete paragraph 13.01.B.5.f in its entirety and insert in its place:

- 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, 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.

### 13.03 *Unit Price Work*

SC-13.03 Add the following new paragraph immediately after paragraph 13.03.E.3:

- F. 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 10 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 25 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.

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

### 14.02 *Tests and Inspections*

SC-14.02 Add the following new paragraph immediately after paragraph 14.02.B:

- 1. Owner will provide materials testing at the discretion of the Engineer, at no charge to the Contractor. Testing shall include, but not be limited to, aggregate base, pavement and concrete. The number of tests performed will be at the discretion of the Engineer. If any tests fail, the Contractor shall remove and replace the defective work in accordance with the Contract Documents. Cost for retesting shall be paid by the Contractor. Owner will provide materials testing on Mondays through Fridays during the standard hours of 8:00 a.m. to 5:00 p.m. Costs for materials testing outside of Mondays through Fridays during the hours of 8:00 a.m. to 5:00 p.m. shall be paid by the Contractor. All outstanding charges for retesting and testing outside of standard hours shall be deducted from the Contractor's final payment, including appropriate interest which may have accrued. Contractor shall stop work as necessary to allow for inspection and tests by Owner and Engineer.

2. That costs incurred by Owner due to retesting, reinspection, or standby time due to unacceptable materials, or workmanship provided by the Contractor, or due to poor scheduling by the Contractor of tests or inspections, will be deducted from the payments to the Contractor. Contractor shall stop work as necessary to allow for inspections and tests by Owner and Engineer.

Add the following new paragraph immediately after paragraph 14.02.D.5:

6. All sampling, specimen preparation, and testing of materials shall be in accordance with the standards of nationally recognized technical organizations. The physical characteristics of all materials not particularly specified shall conform to the latest standards published by the American Society for Testing Materials, where applicable.

Add the following new paragraphs immediately after paragraph 14.05.C.2:

- D. The Owner intends to provide inspection for the project. The inspector will be available during a forty (40) hour period during the week from Monday through Friday. In the event the Contractor receives permission from the Owner and elects to work more than forty hours during the week or more than 10 hours in one day, or on a Saturday, Sunday, or legal holiday, the Contractor shall be responsible for all inspection, engineering and testing costs incurred during that period. For all inspection and testing work performed on Saturday, Sunday, or legal holidays the minimum chargeable time shall be four (4) hours. The Owner reserves the right to deduct these inspection, engineering, and testing costs directly from the Contractor's payments.
- E. The Contractor shall be responsible for attaining the required percentages of relative compaction shown on the Plans and stated in the Technical Conditions. The Owner will take periodic field density tests to assure compliance with the Specifications. The costs of all passing field density tests will be paid for by the Owner. Costs for retests of any failed tests shall be paid for by the Contractor.

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

### **15.01 Progress Payments**

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

1. Not more than thirty days after presentation of the application for payment to Owner with Engineer's recommendation, the amount recommended will become due, and when due will be paid by Owner to Contractor.

Add the following new Paragraph 15.01.F:

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

### 15.03 *Substantial Completion*

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

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

### 15.06 *Final Payment*

SC-15.06 Add the following new paragraph immediately after paragraph 15.06.A.3:

4. If the final Application for Payment is not accompanied by the releases or waivers called for in subsection A.2 of Article 15.06 of the General Conditions, or such releases or waivers as provided by the contractor are not satisfactory to Owner, the retainage withheld from progress payments as stipulated in the agreement will be retained for a period of 45 days after the date of recording of the Notice of Completion. The Notice of Completion will be recorded within 15 days after the completion and acceptance of the Work.

### 15.08 *Correction Period*

SC-15.08.G Add the following new Paragraph 15.08.G:

- G. The correction period specified as one year after the date of Substantial Completion in Paragraph 15.08.A of the General Conditions is hereby revised to be the number of years set forth in Paragraph SC-6.01.B.1; or if no such revision has been made in SC-6.01.B, then the correction period is hereby specified to be 1 years after the date of Substantial Completion established in Engineer's certificate of Substantial Completion.

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

### 16.01 *Owner May Suspend Work*

SC-16.01 Add the following new paragraphs immediately after paragraph 16.01.A:

- B. If the performance of all or any part of the work is suspended, delayed or interrupted for an unreasonable period of time by an act of the Owner in administration of the Contract, or by the Owner's failure to act within the time specified in the Contract (or if no time is specified, within a reasonable time), the Owner will make an adjustment for any increase in the cost of performance of this Contract (excluding profit) necessarily caused by such unreasonable suspension, delay or interruption and modify the Contract in writing. However, no adjustment shall be made under this clause for any suspension, delay or interruption to the extent (1) that performance would have been so suspended, delayed, or interrupted by any

other cause, including the fault or negligence of the Contractor, or (2) for which an equitable adjustment is provided for or excluded under any other provision of the Contract.

- C. No claim under paragraphs 16.01.A or 16.01.B shall be allowed unless the amount claimed is asserted in writing as soon as practicable after the termination of such suspension, delay or interruption, but no later than the date of application for final payment under the contract.

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

SC-16.03 Add the following new paragraphs immediately after paragraph 16.03.B:

- C. This Contract may be terminated in whole or in part in writing by the Owner for its convenience, provided that the Contractor is given written notice (delivered by certified mail, return receipt requested) of intent to terminate, and an opportunity for consultation with the terminating party prior to termination.
- D. If termination for default is effected by the Owner, and equitable adjustment in the price provided for in this Contract shall be made, but (1) no amount shall be allowed for anticipated profit on unperformed services or other work, and (2) any payment due to the Contractor at the time of termination may be adjusted to cover any additional costs to the Owner because of the Contractor's default. If termination for default is effected by the Contractor, or if termination for convenience is effected by the Owner, the equitable adjustment shall include a reasonable profit for services or other work performed. The equitable adjustment for any termination shall provide for payment to the Contractor for services rendered and expenses incurred prior to the termination, in addition to termination settlement costs reasonably incurred by the Contractor relating to commitments which had become firm prior to the termination.
- E. Upon receipt of a termination action under paragraphs 16.03.C or 16.03.D above, the Contractor shall (1) promptly discontinue all affected work (unless the notice directs otherwise), and (2) deliver or otherwise make available to the Owner all data, Drawings, Specifications, reports, estimates, summaries and such other information and materials as may have been accumulated by the Contractor in performing this Contract, whether completed or in process.
- F. Upon termination under paragraphs 16.03.C or 16.03.D above, the Owner may take over the work and may award another party a contract to complete the work under this Contract.
- G. If, after termination for failure of the Contractor to fulfill contractual obligations, it is determined that the Contractor had not failed to fulfill contractual obligations, the termination shall be deemed to have been for the convenience of the Owner. In such event, adjustment of the Contract Price shall be made as provided in paragraph 16.03.D of this clause.
- H. If the Contractor refuses or fails to prosecute the Work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any extensions thereof, or fails to complete such work within such time, or if the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he files a petition to take advantage of any debtor's act, or if he or any of his subcontractors should violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials to complete the Work in the time specified, or



- if he should fail to make prompt payment to subcontractors or for material or labor, or if he should persistently disregard laws, ordinance, or instruction given by the Owner or Engineer, the Owner may, without prejudice to any other right or remedy, serve written notice upon the Contractor and his surety of his intention to terminate the contract, said notice to contain the reasons for such intention to terminate the contract, and unless within ten (10) days after the service of such notice such violations shall cease and satisfactory arrangements for the corrections thereof be made, the contract shall upon the expiration of said ten days cease and terminate. In such cases, the Contractor shall not be entitled to receive any further payment until the Work is finished.
- I. In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract; provided, however, that if the surety within 15 days after the serving upon it of a notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within 30 days from the date of serving said notice, the Owner may take over the Work and prosecute the same to completion by contract or by any other method it may deem advisable for the account and at the expense of the Contractor, and his surety shall be liable to the Owner for any excess cost or other damage occasioned the Owner thereby, and in such event the Owner may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plans, and other property belonging to the Contractor that may be on the site of the Work and be necessary therefore. For any portion of such work that the Owner elects to complete by furnishing its own employees, materials, tools, and equipment, the Owner shall be compensated for such in accordance with the General Conditions.
  - J. If the unpaid balance of the contract price exceeds the direct and indirect costs of completing the Work, including, but not limited to, all costs to Owner arising from professional services and attorney's fees and all costs generated to ensure or bond the Work of substituted Contractors or subcontractors utilized to complete the Work, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner promptly upon demand by Owner. Any portion of such difference not paid by Contractor or surety within 30 days following the mailing of a demand for such costs by Owner shall earn interest at the rate of 10% per annum or the maximum rate authorized by law, whichever is lower.
  - K. The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to the Owner.

**16.04 Contractor May Stop work or Terminate**

**SC-16.04** Add the following new paragraph immediately after paragraph 16.06.B:

- C. This Contract may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligations under the Contract through no fault of the terminating party, provided that no termination may be effected unless the other party is given (1) not less than ten (10) calendar days written notice (delivered by certified

mail, return receipt requested) of intent to terminate, and (2) an opportunity for consultation with the terminating party prior to termination.

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

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

SC-17.01 Add the following new paragraph immediately after 17.01.B.3

- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph SC-12.01.H.3 or a denial pursuant to Paragraphs SC-12.01.H.3 or SC-12.01.G shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
  - 1. elects in writing to demand arbitration of the Claim, pursuant to Paragraph SC 17.02; or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process.

### **17.02 *Arbitration***

- A. All Claims or counterclaims, disputes, or other matters in question between Owner and Contractor arising out of or relating to the Contract Documents or the breach thereof (except for Claims which have been waived by the making or acceptance of final payment as provided by Paragraph 15.07) including but not limited to those not resolved under the provisions of Paragraphs SC 17.01A and 17.01.B will be decided by arbitration in accordance with the rules of American Arbitration Association, subject to the conditions and limitations of this Paragraph SC 17.02. This agreement to arbitrate and any other agreement or consent to arbitrate entered into will be specifically enforceable under the prevailing law of any court having jurisdiction.
- B. The demand for arbitration will be filed in writing with the other party to the Contract and with the selected arbitrator or arbitration provider, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the 30 day period specified in Paragraph SC 17.01.C, and in all other cases within a reasonable time after the Claim or counterclaim, dispute, or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such Claim or other dispute or matter in question would be barred by the applicable statute of limitations.
- C. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder, or in any other manner any other individual or entity (including Engineer, and Engineer's consultants and the officers, directors, partners, agents, employees or consultants of any of them) who is not a party to this Contract unless:
  - 1. the inclusion of such other individual or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration; and
  - 2. such other individual or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings.
- D. The award rendered by the arbitrator(s) shall be consistent with the agreement of the parties, in writing, and include: (i) a concise breakdown of the award; (ii) a written explanation of the

award specifically citing the Contract Document provisions deemed applicable and relied on in making the award.

- E. The award will be final. Judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal, subject to provisions of the Controlling Law relating to vacating or modifying an arbitral award.
- F. The fees and expenses of the arbitrators and any arbitration service shall be shared equally by Owner and Contractor.

## **ARTICLE 18—MISCELLANEOUS**

### **18.11 Access To Records**

SC-18.11 Add the following new paragraphs immediately after Paragraph 18.10.A:

- A. At all times during regular business hours and as often as Owner requires, Contractor shall provide full and free access to the Owner, and Engineer, to any books, documents, papers, and records related to the work for the purpose of examination, audit, and duplication. The Contractor shall maintain all required accounts, records, and books for three years after final completion of the work.

SC-18.12 Add a new paragraph immediately after Paragraph 18.11:

#### **SC-18.12 Confidential Information**

- A. All Drawings, Specifications, technical data, and other information furnished to Contractor either by Owner or Engineer or developed by Contractor or others in connection with the Work are, and will remain, the property of Owner or Engineer, and shall not be copied or otherwise reproduced or used in any way except in connection with the Work, or disclosed to third parties or used in any manner detrimental to the interests of Owner or Engineer.
- B. The following information is not subject to the above confidentiality requirements:
  - 1. information in the public domain through no action of Contractor in breach of the Contract Documents; or
  - 2. information lawfully possessed by Contractor before receipt from Owner or Engineer; or
  - 3. information required to be disclosed by Laws or Regulations, or by a court or agency of competent jurisdiction. However, in the event Contractor shall be so required to disclose such information, Contractor shall, prior to disclosure, provide reasonable notice to Owner and Engineer, who shall have the right to interpose all objections Owner may have to the disclosure of such information.

SC-18.13 Add a new paragraph immediately after Paragraph 18.12, to read as follows:

#### **SC-18.13 Publicity**

- A. Contractor shall not disclose to any third party the nature of its Work on the Project, nor engage in publicity or public media disclosures with respect to the Project without the prior written consent of Owner.



# EXHIBIT F

## SPECIAL CONDITIONS

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EXHIBIT F  
SPECIAL CONDITIONS

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Table of Contents

SC - 1.0 DUST CONTROL ..... 1

SC - 2.0 STOCKPILING ..... 1

SC - 3.0 CONTRACTOR’S USE OF PREMISES ..... 1

SC - 4.0 CLEANUP & WASTE DISPOSAL ..... 1

SC - 5.0 CONTRACT MODIFICATION PROCEDURES ..... 2

SC - 6.0 PROJECT MEETINGS ..... 3





# EXHIBIT F

## SPECIAL CONDITIONS

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### **SC - 1.0 DUST CONTROL**

The CONTRACTOR shall take whatever steps, procedures, or means are required to prevent abnormal dust conditions being caused by his operations in connection with this Contract; and on any unpaved road which the CONTRACTOR or any of his subcontractors are using, excavation or fill areas, demolition operations, or other activities. Control shall be by sprinkling, use of dust pallatives, modifications of operations, or any other means acceptable to the ENGINEER and the Health or Environmental Control Agency having jurisdiction.

### **SC - 2.0 STOCKPILING**

The Contractor shall receive approval for the location of any stockpiles.

### **SC - 3.0 CONTRACTOR'S USE OF PREMISES**

Access to the work site and staging areas shall be coordinated with the Minden Gardnerville Sanitation District.

### **SC - 4.0 CLEANUP & WASTE DISPOSAL**

Throughout the period of construction the CONTRACTOR shall keep the Work site free and clean of all rubbish and debris, and shall promptly remove from any portion of the site, or from property adjacent to the site of the Work, all unused materials, surplus earth and debris, excepting select material which may be required for refilling or grading.

Upon completion of the Work and prior to final acceptance of the project, the Contractor shall remove from the vicinity of the completed Work all plant, surplus material and equipment belonging to him or used under his direction during construction.

The Contractor shall provide for the disposal of all surplus materials, waste products, debris and rejected materials, and shall make necessary arrangements for such disposal in a safe and lawful manner in accordance with State, local and federal codes and regulations. Ditches, washes, and drainageways shall not be filled.

Any damage, oil spills, or other accident affecting the pre-construction condition of any improvements shall be repaired/cleaned to the satisfaction of the Minden Gardnerville Sanitation District prior to final completion

## SC - 5.0 CONTRACT MODIFICATION PROCEDURES

**A. Minor Changes in Work:** Field Orders authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Engineer, in writing. Field Orders will allow for application of Force Account Funds to address minor changes to the Work that do not adjust the Contract Sum or Time.

**B. Change Order Proposal Requests:**

1. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Engineer, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.
  - a. Proposal requests issued by the Engineer are for information only. Do not consider them as instruction either to stop work in progress, or to execute the proposed change.
  - b. Unless otherwise indicated in the proposal request, within 7 days of receipt of the proposal request, the Contractor shall submit to the Engineer, for the Owner's review, an estimate of costs necessary to execute the proposed change. The following shall be included in the proposal request:
    - (1) A list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made.
    - (2) Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    - (3) A Statement indicating the effect the proposed change in the Work will have on the Contract Time.
2. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request in writing for a change to the Engineer. (No verbal communications will be considered valid).
3. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
4. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
5. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

6. If the proposed change in the Work requires the substitution of one product or system for a specified product or system, provide information substantiating its equivalency.

**C. Work Change Directive:** When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Engineer may issue a Work Change Directive, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Work Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time.
2. DOCUMENTATION: Contractor shall maintain detailed records on a time and materials basis for work required by a Work Change Directive which will be verified by the inspector.
3. After completion of the change, the Contractor shall submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

## **SC - 6.0 PROJECT MEETINGS**

### **A. Pre-Construction Conference:**

1. The Contractor shall schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 48 hours prior to commencement of any construction activities.
2. Attendees: The Owner, Public Entities, Utilities, Engineer, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers, and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress including, but not limited to such topics as:
  - a. Tentative Construction Schedule.
  - b. Critical work sequencing.
  - c. Designation of responsible personnel.
  - d. Procedures for processing field decisions and Change Orders.
  - e. Procedures for processing Applications for Payment.
  - f. Distribution of Contract Documents.
  - g. Submittal of Shop Drawings, Product Data and Samples.
  - h. Record documents.
  - i. Use of the premises.
  - j. Work and storage areas.
  - k. Safety procedures.
  - l. First aid.

- m. Security.
- n. Housekeeping.
- o. Working hours.
- p. Schedule of progress meetings.

# EXHIBIT G

## TECHNICAL SPECIFICATIONS

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**SECTION 01 25 13**  
**PRODUCT SUBSTITUTIONS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. The procedure for requesting the approval of substitution of a product that is not equivalent to a product which is specified by descriptive or performance criteria or defined by reference to one or more of the following:
    - a. Name of manufacturer.
    - b. Name of vendor.
    - c. Trade name.
    - d. Catalog number.
  - 2. Substitutions are not "or-equals."
  - 3. This Specification Section does not address substitutions for major equipment.
- B. Related Specification Sections include but are not necessarily limited to:
  - 1. Division 00 - Procurement and Contracting Requirements.
  - 2. Division 01 - General Requirements.
- C. Request for Substitution - General:
  - 1. Base all bids on materials, equipment, and procedures specified.
  - 2. Certain types of equipment and kinds of material are described in specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers.
    - a. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog numbers, provided said products are "or-equals," as determined by Engineer.
  - 3. Other types of equipment and kinds of material may be acceptable substitutions under the following conditions:
    - a. Or-equals are unavailable due to strike, discontinued production of products meeting specified requirements, or other factors beyond control of Contractor; or,
    - b. Contractor proposes a cost and/or time reduction incentive to the Owner.

**1.2 QUALITY ASSURANCE**

- A. In making request for substitution or in using an approved product, Contractor represents they:
  - 1. Have investigated proposed product, and have determined that it is adequate or superior in all respects to that specified, and that it will perform function for which it is intended.
  - 2. Will provide same guarantee for substitute item as for product specified.
  - 3. Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
  - 4. Waives all claims for additional costs related to substitution which subsequently arise.

**1.3 DEFINITIONS**

- A. Product: Manufactured material or equipment.

**1.4 PROCEDURE FOR REQUESTING SUBSTITUTION DURING BIDDING PERIOD**

- A. See Section 00 21 13 - Instructions to Bidders.

**1.5 PROCEDURE FOR REQUESTING SUBSTITUTION AFTER AWARD OF CONTRACT**

- A. Substitution will only be considered under the conditions stated herein.
- B. Written request through Contractor only.

- C. Transmittal Mechanics:
1. Follow the transmittal mechanics prescribed for Shop Drawings in Specification Section 01 33 00.
    - a. Product substitution will be treated in a manner similar to "deviations," as described in Specification Section 01 33 00.
    - b. List the letter describing the deviation and justifications on the transmittal form in the space provided under the column with the heading DESCRIPTION.
      - 1) Include in the transmittal letter, either directly or as a clearly marked attachment, the items listed in Paragraph D below.
- D. Transmittal Contents:
1. Product identification:
    - a. Manufacturer's name.
    - b. Telephone number and representative contact name.
    - c. Specification Section or Drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.
  2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.
  3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:
    - a. Size.
    - b. Composition or materials of construction.
    - c. Weight.
    - d. Electrical or mechanical requirements.
  4. Product experience:
    - a. Location of past projects utilizing product.
    - b. Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product.
    - c. Available field data and reports associated with proposed product.
  5. Data relating to changes in construction schedule.
  6. Data relating to changes in cost.
  7. Samples:
    - a. At request of Engineer.
    - b. Full size if requested by Engineer.
    - c. Held until substantial completion.
    - d. Engineer not responsible for loss or damage to samples.

## **1.6 APPROVAL OR REJECTION**

- A. Written approval or rejection of substitution given by the Engineer.
- B. Engineer reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.
- C. In the event the substitution is approved, the resulting cost and/or time reduction will be documented by Change Order in accordance with the General Conditions.
- D. Substitution will be rejected if:
1. Submittal is not through the Contractor with his stamp of approval.
  2. Request is not made in accordance with this Specification Section.
  3. In the Engineer's opinion, acceptance will require substantial revision of the original design.
  4. In the Engineer's opinion, substitution will not perform adequately the function consistent with the design intent.
- E. Reimburse Owner for the cost of Engineer's evaluation whether or not substitution is approved.



**PART 2 - PRODUCTS - (NOT USED)**

**PART 3 - EXECUTION - (NOT USED)**

**END OF SECTION**

## EXHIBIT A

# Substitution Request Form

(One Item per each Form)

Project:		Date:
Substitution Requestor:		
Contractor:		
Specification Section No:	Paragraph No. (i.e. 2.1.A.1.c):	Specified Item:
Proposed Substitution:		
Provide Product Data Sheets, Manufacturer's written installation instructions, drawings, diagrams, or any other information as an attached to this Form that will demonstrate the proposed substitution is an Approved Equal.		
In the lines provided state differences between proposed substitutions and specified item. Differences include but are not limited to interrelationship with other items; materials, equipment, function, utility, life cycle costs, applied finished, appearances, and quality.		
In the lines provided demonstrate how the proposed substitution is compatible with or modifies other systems, parts, equipment or components of the Project and Work under the Contract		
In the lines provided, describe what effect the proposed substitution has on dimensions indicated on the Drawings and previously reviewed Shop Drawings?		
In the lines provided, describe what effect the proposed substitution has on the Construction Schedule and Contract Time.		
In the lines provided, describe what effect the proposed substitution has on the Contract Price. This includes all direct, indirect, impact and delay costs.		
Manufacturer's guarantees of the proposed and specified items are:		
<div style="display: flex; justify-content: space-between;"> <span><input type="checkbox"/> Same</span> <span><input type="checkbox"/> Different (explain on attachment)</span> </div>		
The undersigned state that the function, utility, life cycle costs, applied finishes, appearance and quality of the proposed substitution are equal or superior to those of the specified item.		
For use by Project Representative:		
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Accepted   <input type="checkbox"/> Not Accepted         </div> <div> <input type="checkbox"/> Accepted as Noted   <input type="checkbox"/> Received Too Late         </div> </div>	<div style="border-bottom: 1px solid black; margin-bottom: 10px; text-align: center;">           (Contractor's Signature)         </div> <div style="border-bottom: 1px solid black; margin-bottom: 10px; text-align: center;">           (Contractor's Firm)         </div> <div style="border-bottom: 1px solid black; margin-bottom: 10px; text-align: center;">           (Firms Address)         </div> <div style="border-bottom: 1px solid black; text-align: center;">           (Telephone)         </div>	<div style="border-bottom: 1px solid black; margin-bottom: 10px; text-align: center;">           (Date)         </div>

Comments:

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**SECTION 01 31 26**  
**ELECTRONIC COMMUNICATION PROTOCOLS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Procedures with which Users will comply regarding transmission or exchange of Electronic Documents for the Project.
- B. Related Requirements:
  - 1. Refer to the General Conditions, as may be modified by the Supplementary Conditions, regarding transmitting Electronic Documents by Electronic Means.
  - 2. In addition to the requirements of this Specifications Section, comply with the requirements for Electronic Documents in the following Specifications:
    - a. Section 01 30 00 - Special Conditions.
    - b. Section 01 32 16 - Construction Progress Schedule.
    - c. Section 01 33 00 - Submittals.

**1.2 DEFINITIONS**

- A. The following terms are defined for use in this Specifications Section and are indicated herein using initial capital letters. The terms have the associated meaning regardless of whether indicated in singular or plural.
  - 1. Electronic Documents Protocol (abbreviated as “EDP”): Procedures and requirements set forth in this Specifications Section for the exchange of Electronic Documents by Electronic Means.
  - 2. Project Website: An internet-based software platform, such as a website or other project management information system (PMIS) designated by Contract or mutual consent of Users as the means of exchanging Electronic Documents during the Project.
  - 3. System Infrastructure: Hardware, operating system(s) software, internet access, e-mail service and software, security software, and large-file transfer functions.
  - 4. Users: Owner, Contractor, Engineer, and others exchanging Electronic Documents on the Project in accordance with the EDP.

**1.3 ADMINISTRATIVE REQUIREMENTS.**

- A. Coordination:
  - 1. Contractor shall require all Subcontractors and Suppliers to comply with the EDP established in the Contract Documents.

**1.4 GENERAL PROVISIONS OF ELECTRONIC DOCUMENT PROTOCOL**

- A. EDP – General:
  - 1. To the fullest extent practical, Users agree to and will transmit and accept Electronic Documents transmitted by Electronic Means in accordance with the requirements of this Specifications Section. Use of the Electronic Documents and any information contained therein is subject to requirements of this Specifications Section and other provisions of the Contract Documents governing transmittal of Electronic Documents.
  - 2. Content of Electronic Documents will be the responsibility of transmitting User.
  - 3. Unless otherwise provided in: (1) the EDP, (2) elsewhere in the Contract Documents, or (3) or other agreement between two or more Users governing use of Electronic Documents, Electronic Documents exchanged in accordance with the Contract Documents may be used in the same manner as paper or other printed versions of the same documents exchanged using other than Electronic Means, subject to the same governing requirements, limitations, and restrictions set forth in the Contract Documents.

4. Except as otherwise explicitly indicated in the EDP, the terms of this EDP will be incorporated into any other agreement or subcontract between a party and a third party for a portion of the Work or Project-related services, where such third party is, either directly or indirectly, required to exchange Electronic Documents with Owner, Contractor, or Engineer. Nothing in this EDP modifies the requirements of the Contract Documents regarding communications between and among Owner, Contractor, and Engineer Subcontractors, Suppliers, consultants, and others for which each is responsible.
  5. When transmitting Electronic Documents, transmitting User makes no representations regarding long-term compatibility, usability, or readability of the items resulting from the receiving User's use of software applications or System Infrastructure differing from those established in this EDP.
  6. This EDP does not negate or mitigate any obligation: (1) in the Contract Documents to create, provide, or maintain an original paper record version of Drawings and Specifications, signed and sealed in accordance with Laws or Regulations; (2) to comply with Laws and Regulations governing signing and sealing of design documents or signing and electronic transmission of other documents; or (3) to comply with notice requirements of the General Conditions (as. May be modified by the Supplementary Conditions).
  7. Modifications to EDP:
    - a. When modifications to the EDP are necessary to address issues affecting System Infrastructure, Users shall cooperatively resolve the issues.
    - b. If resolution within a reasonable time is not achieved, Owner is empowered to require reasonable and necessary changes to the EDP consistent with the original intent of the EDP.
    - c. If such changes result in additional cost or delay to Contractor, not reasonably anticipated under the original EDP, Contractor may seek an adjustment in the Contract Price, Contract Times, or both in accordance with the Contract Documents.
- B. System Infrastructure and Systems for Exchanging Electronic Document:
1. Each User will provide System Infrastructure (as defined in this EDP) at its own cost and sufficient for complying with EDP requirements. Except for minimum standards set forth in this EDP [and explicit system requirements specified by attachment to this EDP], it is the obligation of each User to determine, for itself, such User's own System Infrastructure.
    - a. Maximum size of e-mail file attachment for under this EDP is [\_\_\_\_\_] megabytes (MB). Attachments larger than the maximum size indicated in this paragraph may be exchanged using large-file transfer functions (such as file exchange websites or FTP sites mutually acceptable to the Users) or physical media such as USB flash drive/thumb drive or other physical media mutually acceptable to the Users.
    - b. Each entity transmitting or receiving Electronic Documents has full responsibility for its own costs, delays, deficiencies, and errors associated with converting, translating, updating, verifying, licensing, and otherwise enabling its System Infrastructure for use in accordance with this EDP.
    - c. Each User will provide its own printing facilities and will be responsible for its own costs of printing Electronic Documents.
  2. Each User is responsible for its own system operations, security, back-up, archiving, audits, and other technology and resources for operations of its System Infrastructure during the Project, including coordination with the User's individual(s) or subcontractor(s) responsible for managing its System Infrastructure and capable of addressing communications and other technology issues affecting exchange of Electronic Documents.
  3. Security:
    - a. Each User will operate and maintain industry-standard, industry-accepted, ISO standard, commercial-grade security software and systems to protect against threats including software viruses and other malicious software including worms, trojans, adware; data breaches; loss of confidentiality; and other threats in transmission to, or storage of, Electronic Documents from other Users, including transmission of Electronic Documents by physical media including flash drives/thumb drives, hard drives, compact discs (CD), digital video discs (DVD), and other portable devices,

- whether connected physically or wirelessly.
- b. To the extent that a User maintains and operates such security software and appropriate System Infrastructure, such User will not be liable to other Users participating in the Project for breach of system security.
- 4. Archiving and Electronic Document Backup:
  - a. Each User is responsible for its own back-up and archive of Electronic Documents and data transmitted and received during the Project, unless this EDP establishes a Project Electronic Document archive, either as a mandatory Project Website or other communications protocol, upon which Users may rely for Electronic Document archiving for the duration of the Project Website or archiving system established in this EDP.
  - b. Each User is solely responsible for its own post-Project back-up and archive of Electronic Documents after the Project is complete or after termination of the Project Website or other Project archive (as applicable), for the longer of: (1) required by the Contract Documents, (2) required by Laws and Regulations, and (3) as each User deems necessary for its purposes.
- 5. Receipt of Damaged, Incomplete, or Corrupt Electronic Documents: When a receiving User receives an obviously corrupted, damaged, or unreadable Electronic Document, the receiving User will advise the transmitting User of the incomplete transmission and transmitting User will retransmit the Electronic Document.
- 6. Completion of Transmittals: Users will bring non-conforming Electronic Documents into compliance with the EDP. Users will attempt to complete a successful transmission of the Electronic Document or use an alternative delivery method to complete the transfer of the Electronic Documents.
- 7. Principal means of exchanging Electronic Documents will be e-mail and files attached to e-mail, in accordance with the EDP.
- 8. Project Website:
  - a. Owner will establish, operate, and maintain a Project Website (as defined in this EDP) for use of Owner, Engineer, Contractor, and other Users as appropriate during the Project, for exchanging and storing Project Electronic Documents.
  - b. Unless otherwise provided in the Contract Documents, use of Project Website by Owner, Contractor, and Engineer is mandatory for exchanging Project documents as set forth in the EDP.
  - c. Project Website Conditions and Standards:
    - 1) Software Platform: [\_\_\_\_\_].
    - 2) Duration of Project Website Availability and Reliance by Users: [\_\_\_\_\_].
    - 3) Minimum System Infrastructure Requirements for Project Website Use: [\_\_\_\_\_].
    - 4) Services and Functions Available on Project Website: [\_\_\_\_\_].
    - 5) [\_\_\_\_\_].
  - d. Address of Project Website will be furnished to Contractor, and Project Website will be available to Contractor, within [10] days following the Effective Date of the Contract.
- C. General Requirements and Limitations for Software for Electronic Document Exchange:
  - 1. Software and file formats for exchange of Electronic Documents shall be as indicated in Article 1.5 of this Specifications Section.
  - 2. Software Versions:
    - a. Each User will acquire the software and associated licenses necessary to create, transmit, receive, read, and use Electronic Documents for the Project, using the software and file formats indicate in Article 1.5 of this Specifications Section.
    - b. Prior to using any updated version of the software required in the EDP for Electronic Document(s) transmitted to other User(s), the originating User will first notify and either (1) receive concurrence from receiving User(s) for use of the updated version, or (2) adjust its transmission to comply with the EDP.
  - 3. Preservation of Intellectual Property and Confidentiality of Electronic Documents:
    - a. Users agree to not intentionally edit, reverse-engineer, decrypt, remove security or encryption features, or convert to another format for modification purposes Electronic

Documents, and information and data contained therein, transmitted in a file format, including portable document format (PDF), intended by transmitting User to not be modified, unless the receiving User (1) obtains permission from owner of the Electronic Document and intellectual property contained therein, or (2) is expressly allowed by the EDP to edit or modify the Electronic Document.

- b. Where modifying, editing, decryption, or reverse-engineering is allowed by the EDP, such use is conferred only for the Project.
- c. The EDP does not transfer any ownership or rights of any sort regarding use outside of the Project of Electronic Documents.
- d. Users shall not cite or quote excerpts of Electronic Documents for purposes outside of the Project unless required to do so by Laws and Regulations.

D. Contractor's Requests for Electronic Documents in Other Formats:

- 1. Release of Electronic Documents in format(s) other than those indicated in in Article 1.5 of this Specifications Section and elsewhere in the Contract Documents will be at the discretion of Owner and subject to terms and conditions required by the owner of such files and documents, and the provisions indicated below.
- 2. To extent determined by Owner, in its sole discretion, to be appropriate, release of Electronic Documents in alternative format(s) requested by Contractor ("Request") are subject to provisions of Owner's response to the Request and to the following:
  - a. Contractor's Request shall be in writing. Owner and others, as appropriate, will consider and respond to Request promptly, but neither Owner nor Engineer will be responsible for any time or cost impacts on Contractor associated with timing of the Request, or with Owner's decision associated therewith.
  - b. When Engineer is the owner of the Electronic Documents requested by Contractor in native format, prior to Engineer transmitting such Electronic Documents to Contractor, Contractor shall sign and deliver to Engineer, without modifying or amending, Engineer's "Electronic Media Release" agreement.
  - c. Content included in Electronic Documents created by Engineer and furnished in response to the Request was prepared by Engineer as an internal working document for Engineer's purposes solely and, when provided to Contractor, is on an "as-is" basis without warranties of any kind, including, but not limited to any implied warranties of fitness for purpose. Contractor acknowledges that content of Electronic Documents furnished in response to the Request may not be suitable for Contractor's purpose(s), or may require substantial modification and independent verification by Contractor. Content may include limited resolution of models, not-to-scale schematic representations and symbols, use of notes to convey design concepts in lieu of accurate graphics, approximations, graphical simplifications, undocumented intermediate revisions, and other shown or indicated information that may affect subsequent use by Contractor or others for whom Contractor is responsible.
  - d. Electronic Documents containing text, graphics, metadata, or other types of data furnished by Engineer in response to the Request are only for Contractor's convenience and any and all conclusions or information obtained or derived from such Electronic Documents will be at Contractor's sole risk and expense. Contractor waives any and all claims against Engineer, Owner, or both arising from Contractor's use of Electronic Documents furnished in response to the Request.
  - e. Contractor shall indemnify and hold harmless Owner, Engineer, and their respective consultants and subconsultants from any and all claims, damages, losses, and expenses, including attorneys' fees and defense costs, fees and costs of engineers, architects, geologists, accountants, and other professionals, and any and all other costs, direct and indirect, resulting from Contractor's use, adaptation, or distribution of Electronic Document(s) furnished in response to the Request.
  - f. Contractor shall not sell, copy, transfer, forward, give away or otherwise distribute the Electronic Documents (in source format or modified file format) to any third party without direct written authorization of Engineer or other entity that owns the Electronic document(s), unless such distribution is specifically indicated in the Request and is

limited to Subcontractors and Suppliers. Contractor warrants that subsequent use by Subcontractors and Suppliers complies with terms and conditions of the Contract Documents, Owner's response to the Request, and release agreement(s) (if any) by owner of the Electronic Documents (including Engineer, where applicable).

3. When the Request is for Electronic Documents in a format not other than that indicated in the Contract Documents, and Owner (and others, as applicable) decide to comply with the Request, and when the requested Electronic Documents are not easily available in the format(s) requested, Contractor shall reimburse Owner for costs incurred by Owner, either directly or indirectly, to furnish Electronic Documents in accordance with the Request at a rate of \$[ ] per labor-hour to furnish the requested format(s). In compensation, Owner may retain such amount(s) as set-off(s) under the Contract Documents.

## 1.5 EXCHANGE OF ELECTRONIC DOCUMENTS

- A. Comply with the Electronic Document formats, transmission methods, and permitted uses set forth in Table 01 31 26-A, Exchange of Electronic Documents, below, when transmitting or using Electronic Documents on the Project. Where a row in the table has no indicated means of transmitting Electronic Documents, use for such documents only paper copies transmitted to the receiving party via appropriate delivery method.

**TABLE 01 31 26-A – EXCHANGE OF ELECTRONIC DOCUMENTS**

Electronic Document Type	Format	Transmitting User	Transmission Method	Receiving User	Allowed Uses	Notes
1.5.A.1. Project communications						
General communications & correspondence	EM, PDF	O, E, C	EM, EMA	O, E, C	R	
Meeting notices and agendas	EM, PDF	E	EM, EMA	O, C	R	
Meeting minutes	PDF	E	EM, EMA	O, C	R	
1.5.A.2. Contractor's Submittals to Engineer						
Shop Drawings	PDF	C	EMA	E	M (1)	(1)
Product data Submittals, delegated design Submittals, and other action Submittals (except Samples)	PDF	C	EMA	E	M (1)	(1)
Informational and closeout Submittals:	PDF	C	EMA	E	M (1)	(1) (6)
Documentation of delivery of maintenance materials submittals	PDF	C	EMA	E	M (1)	
1.5.A.3. Engineer's return of reviewed Submittals to Contractor						
Shop Drawings	PDF	E	EMA	O., C	R	
Product data Submittals, delegated design Submittals, and other action Submittals	PDF	E	EMA	O., C	R	
Informational and closeout Submittals:	PDF	E	EMA	O., C	R	(6)
Documentation of delivery of maintenance materials submittals	PDF	E	EMA	O. C	R	
1.5.A.4. Contract Modifications Documents						
Requests for interpretation to Engineer	PDF	C., O	EMA	E	M (1)	(1)

Electronic Document Type	Format	Transmitting User	Transmission Method	Receiving User	Allowed Uses	Notes
Engineer's interpretations (RFI responses)	PDF	E	EMA	C, O	R	
Engineer's clarifications to Contractor	EM, PDF	E	EM, EMA	C, O	R	
Engineer's issuance of Field Orders	PDF	E	EMA	C, O	R	
Proposal Requests	PDF	E, O	EMA	C	R	
Change Proposals – submitted to Engineer	PDF	C	EMA	O, E	S	
Change Proposals – Engineer's response	PDF	E	EMA	C, O		
Work Change Directives (for Contractor signature)	PDF	E	EMA	C	R	(2)
Change Orders (for Contractor signature)	PDF	E	EMA	C	R	(2)
1.5.A.5. Applications for Payment						(3)
1.5.A.6. Claims and other notices						(4)
1.5.A.7. Closeout Documents						
Record drawings	DWG and PDF	C	EMA	E, O	M (5)	(5)
Other record documents	PDF	C	EMA	E, O	M (5)	(5)
Contract closeout documents						

**PART 2 - PRODUCTS - (NOT USED)**

**PART 3 - EXECUTION - (NOT USED)**

**END OF SECTION**



## **SECTION 01 33 00**

### **SUBMITTALS**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Mechanics and administration of the submittal process for:
    - a. Shop Drawings.
    - b. Samples.
    - c. Informational submittals.
  - 2. General content requirements for Shop Drawings.
- B. Related Specification Sections include but are not necessarily limited to:
  - 1. Division 00 - Procurement and Contracting Requirements.
  - 2. Division 01 - General Requirements.
  - 3. Construction Progress Schedule submittal requirements are specified in Specification Section 01 32 16.
  - 4. Operations and Maintenance Manual submittal requirements are specified in Specification Section 01 33 04.
  - 5. Technical Specification Sections identifying required submittals.

##### **1.2 DEFINITIONS**

- A. Action Submittals:
  - 1. Action Submittals require an explicit, written approval or other appropriate action by Engineer before Contractor may release the associated item(s) for raw materials procurement, fabrication, production, and shipment.
  - 2. Unless otherwise indicated in the Contract Documents, Action Submittals include the following:
    - a. Shop Drawings.
    - b. Product data.
    - c. Samples.
    - d. Testing plans for quality control activities required by the Contract Documents.
    - e. Delegated Designs: Design drawings, design specifications, calculations, reports, and other instruments of service sealed and signed by design professional retained by Contractor, Subcontractor, or Supplier for a portion of the completed Work as part of the completed Project. Engineer's approval or other appropriate action on such delegated design Submittals will be only for the limited purposes set forth in the General Conditions.
- B. Informational Submittals:
  - 1. Informational Submittals are Submittals, other than Action Submittals, required by the Contract Documents. Explicit response from Engineer is not required when such Submittal is acceptable and Engineer's acceptance thereof will be indicated in the Engineer's Submittals log. When Informational Submittal does not indicate full compliance with the Contract Documents, Engineer will indicate the non-compliance in a written response to Contractor.
  - 2. Representative types of informational submittal items include but are not limited to:
    - a. HVAC test and balance reports.
    - b. Installed equipment and systems performance test reports.
    - c. Manufacturer's installation certification letters.
    - d. Instrumentation and control commissioning reports.
    - e. Warranties.
    - f. Service agreements.

- g. Construction photographs.
  - h. Survey data.
  - i. Work plans.
  - j. Shop Drawings, product data, Samples, and testing plans, submitted as a requirement of for delegated designs, bearing the Submittal approval stamp of associated design professional retained by Contractor, Subcontractor, or Supplier.
3. For-Information-Only submittals upon which the Engineer is not expected to conduct review or take responsive action may be so identified in the Contract Documents.

### 1.3 SUBMITTAL SCHEDULE

- A. Schedule of Shop Drawings:
  - 1. Submitted and approved within [20] days of receipt of Notice to Proceed.
  - 2. Account for multiple transmittals under any specification section where partial submittals will be transmitted.
- B. Shop Drawings: Submittal and approval prior to [30] PCT completion of project.
- C. Informational Submittals:
  - 1. Reports and installation certifications submitted within [seven] days of conducting testing, installation, or examination.
  - 2. Submittals showing compliance with required qualifications submitted [20] days prior to any work beginning using the subject qualifications.
- D. The submittal schedule shall include the following columns as a minimum:

Submittal Section	Submittal Description	Planned Submittal Date	Submittal Need Date	Actual Submittal Date	Actual Return Date	Disposition

### 1.4 PREPARATION OF SUBMITTALS

- A. General:
  - 1. All submittals and all pages of all copies of a submittal shall be completely legible.
  - 2. Submittals which, in the Engineer's sole opinion, are illegible will be returned without review.
  - 3. Minimize extraneous information for equipment and products not relevant to the submittal.
  - 4. Contractors or vendors written comments on the submittal drawings shall be in green
- B. Shop Drawings, Product Data, and Samples:
  - 1. Scope of any submittal and letter of transmittal:
    - a. Limited to one Specification Section.
    - b. Submittals with more than one Specification section included will be rejected.
    - c. Do not submit under any Specification Section entitled (in part) "Basic Requirements" unless the product or material submitted is specified, in total, in a "Basic Requirements" Specification Section.
  - 2. Numbering letter of transmittal:
    - a. Include as prefix the Specification Section number followed by a series number, "-xx", beginning with "01" and increasing sequentially with each additional transmittal for that Specification Section.
    - b. If more than one submittal under any Specification Section, assign consecutive series numbers to subsequent transmittal letters.
  - 3. Describing transmittal contents:
    - a. Provide listing of each component or item in submittal capable of receiving an independent review action.
    - b. Identify for each item:
      - 1) Manufacturer and Manufacturer's Drawing or data number.

- 2) Contract Document tag number(s).
- 3) Unique page numbers for each page of each separate item.
- c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "or-equal" in the item description.
- 4. Contractor certification of review and approval:
  - a. Contractor's review and approval certification stamp shall be applied either to the letter of transmittal or a separate sheet preceding each independent item in the submittal.
    - 1) Stamp may be either a wet ink stamp or electronically embedded.
    - 2) Clearly identify the person who reviewed the submittal and the date it was reviewed.
    - 3) Shop Drawing submittal stamp shall read "(Contractor's Name) has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval as stipulated in the General Conditions."

OR

- b. Execute Exhibit AA, Contractor's Submittal Certification form, to indicate Contractor has reviewed and approved the submittal contents.
  - 1) Clearly identify the person who reviewed the submittal and the date it was reviewed."
- c. Submittals containing multiple independent items shall be prepared with each item listed on the letter of transmittal or on an index sheet for all items listing the discrete page numbers for each page of each item, which shall be stamped with the Contractor's review and approval stamp.
  - 1) Each independent item shall have a cover sheet with the transmittal number and item number recorded.
    - a) Provide clear space of 3 IN SQ for Engineer stamping.
  - 2) Individual pages or sheets of independent items shall be numbered in a manner that permits the entire contents of a particular item to be readily recognized and associated with Contractor's certification.
- 5. Resubmittals:
  - a. Number with original Specification Section and series number with a suffix letter starting with "A" on a (new) duplicate transmittal form.
  - b. Do not increase the scope of any prior transmittal.
  - c. Provide cover letter indicating how each "B", "C", or "D" Action from previous submittal was addressed and where the correction is found in the resubmittal.
  - d. Account for all components of prior transmittal.
    - 1) If items in prior transmittal received "A" or "B" Action code, list them and indicate "A" or "B" as appropriate.
      - a) Do not include submittal information for items listed with prior "A" or "B" Action in resubmittal.
    - 2) Indicate "Outstanding-To Be Resubmitted At a Later Date" for any prior "C" or "D" Action item not included in resubmittal.
      - a) Obtain Engineer's approval to exclude items.
- 6. For 8-1/2 x 11 IN, 8-1/2 x 14 IN, and 11 x 17 IN size sheets, provide [five] copies of each submittal for Engineer plus the number required by the Contractor.
  - a. The number of copies required by the Contractor will be defined at the Preconstruction Conference, but shall not exceed [three].
  - b. All other size sheets:
    - 1) Submit one reproducible transparency or high resolution print and one additional print of each Drawing until approval is obtained.
    - 2) Utilize mailing tube; do not fold.
    - 3) The Engineer will mark and return the reproducible to the Contractor for reproduction and distribution.
- 7. Do not use red color for marks on transmittals.
  - a. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible.
  - b. Engineer will use red marks or enclose marks in a cloud.

8. Transmittal contents:
  - a. Coordinate and identify Shop Drawing contents so that all items can be easily verified by the Engineer.
  - b. Provide submittal information or marks defining specific equipment or materials utilized on the Project.
    - 1) Generalized product information, not clearly defining specific equipment or materials to be provided, will be rejected.
  - c. Identify equipment or material project use, tag number, Drawing detail reference, weight, and other Project specific information.
  - d. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
  - e. Do not modify the manufacturer's documentation or data except as specified herein.
  - f. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets not exceeding 11 x 17 IN pages.
    - 1) Indicate exact item or model and all options proposed by arrow and leader.
  - g. When a Shop Drawing submittal is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
    - 1) Arrange data and performance information in format similar to that provided in Contract Documents.
    - 2) Provide, at minimum, the detail specified in the Contract Documents.
  - h. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet. Any deviation from plans or specifications not depicted in the submittal or included but not clearly noted by the Contractor may not have been reviewed. Review by the Engineer shall not serve to relieve the Contractor of the contractual responsibility for any error or deviation from contract requirements.
9. Samples:
  - a. Identification:
    - 1) Identify sample as to transmittal number, manufacturer, item, use, type, project designation, tag number, Specification Section or Drawing detail reference, color, range, texture, finish and other pertinent data.
    - 2) If identifying information cannot be marked directly on sample without defacing or adversely altering samples, provide a durable tag with identifying information securely attached to the sample.
  - b. Include application specific brochures, and installation instructions.
  - c. Provide Contractor's review and approval certification stamp or Contractor's Submittal Certification form as indication of Contractor's checking and verification of dimensions and coordination with interrelated work.
  - d. Resubmit revised samples of rejected items.

C. Informational Submittals:

1. Prepare in the format and detail specified in Specification requiring the informational submittal.

## 1.5 TRANSMITTAL OF SUBMITTALS

A. Shop Drawings and Samples:

1. Transmit all submittals to:

HDR  
[Address]

[City, State, Zip]

Attn: [ ]

2. Utilize two copies of attached Exhibit A to transmit all Shop Drawings and samples.
3. All submittals must be from Contractor.
  - a. Submittals will not be received from or returned to subcontractors.

B. Informational Submittals:

1. Transmit under Contractor's standard letter of transmittal or letterhead.
2. Submit in triplicate or as specified in individual Specification Section.
3. Transmit to:

HDR

[Address]

[City, State, Zip]

Attn: [Project Manager]

C. Electronic Transmission of Submittals:

1. Transmittals [may][shall] be made electronically.
  - a. Use [HDR's Project Tracker Collaboration System (PTCS)][(other commercial project collaboration application)][email].
  - b. Protocols and processes will be determined at the Pre-Construction Conference.
2. Provide documents in Adobe Acrobat Portable Document Format (PDF), latest version.
3. Do not password protect or lock the PDF document.
4. Drawings or other graphics must be converted to PDF file format from the original drawing file format and made part of the PDF document.
  - a. Scanning of drawings is to be used only where actual file conversion is not possible and drawings must be scanned at a resolution of 300 DPI or greater.
  - b. Required signatures may be applied prior to scanning for transmittal.
5. Electronic drawings shall be formatted to be at full-scale (or half-scale when printed to 11x17).
  - a. Do not reduce drawings by more than 50 PCT in size.
  - b. Reduced drawings shall be clearly marked "HALF-SIZE" and shall scale accurately at that size.
6. Rotate sheets that are normally viewed in landscape mode so that when the PDF file is opened the sheet is in the appropriate position for viewing.
7. Create bookmarks in the bookmarks panel for the cover, the Table of Contents, and each major section of the document.
8. Using Adobe Acrobat Standard or Adobe Acrobat Professional, set the PDF document properties, initial view as follows:
  - a. Select File → Properties → Initial View.
  - b. Select the Navigation tab: Bookmarks Panel and Page.
  - c. Select the Page layout: Single Page.
  - d. Select the Magnification: Fit Page.
  - e. Select Open to page: 1.
  - f. Set the file to open to the cover page with bookmarks to the left, and the first bookmark linked to the cover page.
9. Set the PDF file "Fast Web View" option to open the first several pages of the document while the rest of the document continues to load.
  - a. To do this:
    - 1) Select Edit → Preferences → Documents → Save Settings.
    - 2) Check the Save As optimizes for Fast Web View box.
10. File naming conventions:
  - a. File names shall use the convention (XXXXXX-YY-Z.PDF) where XXXXXX is the Specification Section number, YY is the Shop Drawing Root number and Z is an ID number used to designate the associated volume.

11. Labeling:
  - a. As a minimum, include the following labeling on all electronic media:
    - 1) Project Name.
    - 2) Equipment Name and Project Tag Number.
    - 3) Project Specification Section.
    - 4) Manufacturer Name.
    - 5) Vendor Name.
12. Binding:
  - a. Include labeled electronic media in a protective case.
    - 1) Bind protective case in three-ring binder, inserted at the front of the Final paper copy submittal.
    - 2) Protective case(s) to have means for securing electronic media to prevent loss (e.g., zip case, flap and strap, or equivalent).

## 1.6 ENGINEER'S REVIEW ACTION

- A. Shop Drawings and Samples:
  1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
    - a. A - FURNISH AS SUBMITTED.
    - b. B - FURNISH AS NOTED (BY ENGINEER).
    - c. C - REVISE AND RESUBMIT.
    - d. D - REJECTED.
    - e. E - ENGINEER'S REVIEW NOT REQUIRED.
  2. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
    - a. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned rejected.
  3. In relying on the representation on the Contractor's review and approval stamp, Owner and Engineer reserve the right to review and process poorly organized and poorly described submittals as follows:
    - a. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:
      - 1) Review and approval will be limited to the single item described on the transmittal letter.
      - 2) Other items identified in the submittal will:
        - a) Not be logged as received by the Engineer.
        - b) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description and stamping.
        - c) Be submitted by the Contractor as a new series number, not as a re-submittal number.
    - b. Engineer, at Engineer's discretion, may revise the transmittal letter item list and descriptions, and conduct review.
      - 1) Unless Contractor notifies Engineer in writing that the Engineer's revision of the transmittal letter item list and descriptions was in error, Contractor's review and approval stamp will be deemed to have applied to the entire contents of the submittal package.
  4. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
    - a. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.
    - b. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
  5. Submittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:

- a. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference).
  - 1) One copy or the one transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
    - a) Correct and resubmit items so marked.
- b. Items marked "A" or "B" will be fully distributed.
- c. If a portion of the items or system proposed are acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
  - 1) This is at the sole discretion of the Engineer.
  - 2) In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
  - 3) Distribution to the Owner and field will not be made (unless previously agreed to otherwise).
6. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
7. Calculations required in individual Specification Sections will be received for information purposes only, as evidence calculations have been stamped by the professional as defined in the specifications and for limited purpose of checking conformance with given performance and design criteria. The Engineer is not responsible for checking the accuracy of the calculations and the calculations will be returned stamped "E. Engineer's Review Not Required" to acknowledge receipt.
8. 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.
9. Transmittals of submittals which the Engineer considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" action in a prior submittal, will be returned with action "E. Engineer's Review Not Required."
10. Samples may be retained for comparison purposes.
  - a. Remove samples when directed.
  - b. Include in bid all costs of furnishing and removing samples.
11. Approved samples submitted or constructed, constitute criteria for judging completed work.
  - a. Finished work or items not equal to samples will be rejected.

## **PART 2 - PRODUCTS - (NOT USED)**

## **PART 3 - EXECUTION - (NOT USED)**

### **END OF SECTION**

# EXHIBIT A    Shop Drawing Transmittal No.

(Spec Section)    (Series)

Project Name:		Date Received:
Project Owner:		Checked By:
Contractor:	HDR Engineering, Inc.	Log Page:
Address:	Address:	HDR No.:
		Spec Section:
		Drawing/Detail No.:
Attn:	Attn:	1st. Sub      ReSub.
Date Transmitted:	Previous Transmittal Date:	

Item No.	No. Copies	Description	Manufacturer	Mfr/Vendor Dwg or Data No.	Action Taken*

Remarks:

\* The Action designated above is in accordance with the following legend:

<p>A - Furnish as Submitted</p> <p>B - Furnish as Noted</p> <p>C - Revise and Submit</p> <p>    1. Not enough information for review.</p> <p>    2. No reproducibles submitted.</p> <p>    3. Copies illegible.</p> <p>    4. Not enough copies submitted.</p> <p>    5. Wrong sequence number.</p> <p>    6. Wrong resubmittal number.</p> <p>    7. Wrong spec. section.</p> <p>    8. Wrong form used.</p> <p>    9. See comments.</p> <p>D - Rejected</p>	<p>E - Engineer's review not required</p> <p>    1. Submittal not required.</p> <p>    2. Supplemental Information. Submittal retained for informational purposes only.</p> <p>    3. Information reviewed and approved on prior submittal.</p> <p>    4. See comments.</p> <p>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. Any deviation from plans or specifications not depicted in the submittal or included but not clearly noted by the Contractor may not have been reviewed. Review by the Engineer shall not serve to relieve the Contractor of the contractual responsibility for any error or deviation from contract requirements.</p>
---	---

Comments:

By	Date

Distribution:    Contractor    |    File    |    Field    |    Owner    |    Other    |

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# Contractor's Submittal Certification

Shop Drawing Transmittal No.:

Contract/Project Name:

Company Name:

has

1. reviewed and coordinated this Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
2. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
3. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
4. 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.

☐ This Submittal **does not** contain any variations from the requirements of the Contract Documents.

☐ This Submittal **does** contain variations from the requirements of the Contract Documents. A separate description of said variations and a justification for them is provided in an attachment hereto identified as:

"Shop Drawing Transmittal No. \_\_\_\_\_ Variation and Justification Documentation"

Insert picture file or electronic signature of Authorized Representative

\_\_\_\_\_  
Authorized Representative

\_\_\_\_\_  
Date



**SECTION 01 33 04**  
**OPERATION AND MAINTENANCE MANUALS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Administration of the submittal process for Operation and Maintenance Manuals.
  - 2. Content requirements for Operation and Maintenance Manuals.
- B. Related Specification Sections include but are not necessarily limited to:
  - 1. Division 00 - Procurement and Contracting Requirements.
  - 2. Division 01 - General Requirements.
  - 3. General submittal requirements are specified in Specification Section 01 33 00 - Submittals.
  - 4. Technical Specification Sections identifying required Operation and Maintenance Manual submittals.

**1.2 DEFINITIONS**

- A. Equipment Operation and Maintenance Manuals:
  - 1. Contain the technical information required for proper installation, operation and maintenance of process, electrical and mechanical equipment and systems.
- B. Building Materials and Finishes Operation and Maintenance Manuals:
  - 1. Contain the information required for proper installation and maintenance of building materials and finishes.

**1.3 SUBMITTALS**

- A. List of all the Operation and Maintenance Manuals required by the Contract as identified in the Technical Specification Sections. These may be referred to as "Operation and Maintenance Data" submittals.
- B. Operation and Maintenance Manuals:
  - 1. Draft and final electronic copies.
  - 2. Final paper copies: [One].

**1.4 SUBMITTAL SCHEDULE**

- A. List of Required Operation and Maintenance Manuals:
  - 1. Submit list with Specification Section number and title within [90] days after Notice to Proceed.
- B. Draft Operation and Maintenance Manuals:
  - 1. Submit approvable draft manuals in electronic format (PDF) within [30] days following approval of the respective Shop Drawing.
    - a. Include placeholders or fly sheet pages where information is not final or is missing from the draft manual.
  - 2. All Draft Operation and Maintenance Manuals shall be received by no later than [50] PCT project completion.
- C. Final Operation and Maintenance Manuals:
  - 1. Final approval of Operation and Maintenance Manuals in electronic format (PDF) must be obtained [45] days prior to equipment start-up.
  - 2. Provide paper copies and CD-ROMs of approved final Operation and Maintenance Manuals in electronic format (PDF), a minimum of [30] days prior to equipment start-up.
  - 3. Issue addenda to Final Approved Operation and Maintenance Manual to include:

- a. Equipment data that requires collection after start-up, for example but not limited to HVAC balancing reports, electrical switchgear, automatic transfer switch and circuit breaker settings.
- b. Equipment field testing data.
- c. Equipment start-up reports.

## 1.5 PREPARATION OF SUBMITTALS

### A. General:

1. All pages of the Operation and Maintenance Manual submittal shall be legible.
  - a. Submittals which, in the Engineer's sole opinion, are illegible will be rejected without review.
2. Identify each equipment item in a manner consistent with names and identification numbers used in the Contract Documents, not the manufacturer's catalog numbers.
3. Neatly type any data not furnished in printed form.
4. Operation and Maintenance Manuals are provided for Owner's use, to be reproduced and distributed as training and reference materials within Owner's organization.
  - a. This requirement is:
    - 1) Applicable to both paper copy and electronic files.
    - 2) Applicable to materials containing copyright notice as well as those with no copyright notice.
5. Notify supplier and/or manufacturer of the intended use of Operations and Maintenance Manuals provided under the Contract.

### B. Operation and Maintenance Manual Format and Delivery:

1. Draft electronic submittals:
  - a. Provide manual in Adobe Acrobat Portable Document Format (PDF), latest version.
  - b. Create one (1) PDF file for each equipment Operation and Maintenance Manual.
  - c. Do not password protect or lock the PDF document.
  - d. Scanned images of paper documents are not acceptable. Create the Operation and Maintenance Manual PDF file from the original source document.
  - e. Drawings or other graphics must be converted to PDF file format from the original drawing file format and made part of the PDF document.
  - f. Scanning of drawings is to be used only where actual file conversion is not possible and drawings must be scanned at a resolution of 300 DPI or greater.
  - g. Rotate sheets that are normally viewed in landscape mode so that when the PDF file is opened the sheet is in the appropriate position for viewing.
  - h. Create bookmarks in the bookmarks panel for the Operation and Maintenance Manual cover, the Table of Contents and each major section of the Table of Contents.
  - i. Using Adobe Acrobat Standard or Adobe Acrobat Professional, set the PDF document properties, initial view as follows:
    - 1) Select File → Properties → Initial View.
    - 2) Select the Navigation tab: Bookmarks Panel and Page.
    - 3) Select the Page layout: Single Page Continuous.
    - 4) Select the Magnification: Fit Page.
    - 5) Select Open to page: 1.
    - 6) Set the file to open to the cover page of the manual with bookmarks to the left, and the first bookmark linked to the cover page.
    - 7) Window Options: Check the "Resize window to initial page" box.
  - j. Set the PDF file "Fast Web View" option to open the first several pages of the document while the rest of the document continues to load.
    - 1) To do this:
      - a) Select Edit → Preferences → Documents → Save Settings.
      - b) Check the "Save As optimizes for Fast Web View" box.
  - k. PDF file naming convention:
    - 1) Use the Specification Section number, the manufacturer's name and the equipment description, separated by underscores.

- 2) Example: 46 51 21\_Sanitaire\_Coarse\_Bubble\_Diffusers.pdf.
  - 3) Do not put spaces in the file name.
2. Final electronic submittals:
  - a. Submit two copies in PDF file format on two USB flash drives or on two CD-ROM discs (one copy per electronic media), each secured in a protective case.
  - b. Labeling:
    - 1) Provide the following printed labeling on all electronic media:
      - a) Project name.
      - b) Specification Section.
      - c) Equipment names and summary of tag(s) covered.
      - d) Manufacturer name.
      - e) Date (month, year).
  - c. Binding:
    - 1) Include labeled electronic media in a protective case.
      - a) Bind protective case in three-ring binder, inserted at the front of the Final paper copy submittal.
      - b) Protective case(s) to have means for securing electronic media to prevent loss (e.g., zip case, flap and strap, or equivalent).
3. Final paper copy submittals:
  - a. Quantity: Provide two copies.
  - b. Paper: 8.5 x 11 IN or 11 x 17 IN bright white, 20 LB paper with standard three-hole punching.
  - c. 3-Ring Binder:
    - 1) Provide D-ring binder with clear vinyl sleeves (i.e. view binder) on front and spine.
    - 2) Insert binder title sheet with the following information under the front and spine sleeves:
      - a) Project name.
      - b) Specification Section.
      - c) Equipment names and summary of tag(s) covered.
      - d) Manufacturer name.
      - e) Date (month, year).
    - 3) Provide plastic sheet lifters prior to first page and following last page.
  - d. Drawings:
    - 1) Provide all drawings at 11 x 17 IN size, triple folded and three-hole punched for insertion into manual.
    - 2) Where reduction is not practical to ensure readability, fold larger drawings separately and place in three-hole punched vinyl envelopes inserted into the binder.
    - 3) Identify vinyl envelopes with drawing numbers.
  - e. Use plastic coated dividers to tab each section of each manual in accordance with the Table of Contents.
- C. Equipment Operation and Maintenance Manual Content:
  1. Provide a cover page as the first page of each manual with the following information:
    - a. Manufacturer(s) Name and Contact Information.
    - b. Vendor's Name and Contact Information.
    - c. Date (month, year).
    - d. Project Owner and Project Name.
    - e. Specification Section.
    - f. Project Equipment Tag Numbers.
    - g. Model Numbers.
    - h. Engineer's Name.
    - i. Contractor's Name.
  2. Provide a Table of Contents for each manual.
  3. Provide Equipment Record sheets as follows:
    - a. Printed copies of the Equipment Record (Exhibits B1, B2 and B3), as the first tab following the Table of Contents.

- 1) For Instrumentation and Control equipment, International Society of Automation (ISA) Data Sheets will be acceptable in lieu of the Equipment Record sheets.
  - b. Exhibits B1-B3 are available as Fillable PDF Form documents from the Engineer.
  - c. Each section of the Equipment Record must be completed in detail; simply referencing the related equipment Operation and Maintenance Manual sections for nameplate, maintenance, spare parts or lubricant information is not acceptable.
  - d. For equipment involving separate components (for example, a motor and gearbox), a fully completed Equipment Record is required for each component.
  - e. Submittals that do not include the Equipment Record(s) will be rejected without further content review.
4. Provide a printed copy of the Manufacturer's Field Services report as required by Specification Section 01 75 00 following the Equipment Record sheets.
  5. Provide the following detailed information, as applicable:
    - a. Use equipment tag numbers from the Contract Documents to identify equipment and system components.
    - b. Equipment function, normal and limiting operating characteristics.
    - c. Instructions for assembly, disassembly, installation, alignment, adjustment, and inspection.
    - d. Operating instructions for start-up, normal operation, control, shutdown, and emergency conditions.
    - e. Maintenance instructions, including lubrication instructions if applicable
    - f. Troubleshooting guide.
    - g. Mark each sheet to clearly identify specific products and component parts and data applicable to the installation for the Project; delete or cross out information that does not specifically apply to the Project.
    - h. Parts lists:
      - 1) A parts list and identification number of each component part of the equipment.
      - 2) Exploded view or plan and section views of the equipment with a detailed parts callout matching the parts list.
      - 3) A list of recommended spare parts.
      - 4) List of spare parts provided as specified in the associated Specification Section.
      - 5) A list of any special storage precautions which may be required for all spare parts.
    - i. General arrangement, cross-section, and assembly drawings.
    - j. Electrical diagrams, including elementary diagrams, wiring diagrams, connection diagrams, and interconnection diagrams.
    - k. Factory and field test data and performance curves (if applicable).
    - l. As-constructed fabrication or layout drawings and wiring diagrams.
    - m. Copy of the equipment manufacturer's warranty meeting the requirements of the Contract.
    - n. Copy of any service contracts provided for the specific piece of equipment as part of the Contract.
  6. Additional information as required in the associated equipment or system Specification Section.
  7. Include in Submittal the final, configured control setpoints and similar configurable parameters provided in the equipment.
- D. Building Materials and Finishes Operation and Maintenance Manual Content:
1. Provide a cover page as the first page of each manual with the following information:
    - a. Manufacturer(s) Name and Contact Information.
    - b. Vendor's Name and Contact Information.
    - c. Date (month, year).
    - d. Project Owner and Project Name.
    - e. Specification Section.
    - f. Model Numbers.
    - g. Engineer's Name.
    - h. Contractor's Name.

2. Provide a Table of Contents for each manual.
  3. Building products, applied materials and finishes:
    - a. Include product data, with catalog number, size, composition and color and texture designations.
    - b. Provide information for ordering custom manufactured products.
  4. Necessary precautions:
    - a. Include product MSDS for each approved product.
    - b. Include any precautionary application and storage guidelines.
  5. Instructions for care and maintenance:
    - a. Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.
  6. Moisture protection and weather exposed products:
    - a. Include product data listing, applicable reference standards, chemical composition, and details of installation.
    - b. Provide recommendations for inspections, maintenance and repair.
  7. Additional requirements as specified in individual product specifications.
- E. National Fire Protection Association 70 (National Electrical Code) Documentation:
1. Assemble documented calculations of Arc-Fault Current, Equipment Available Fault Current and Short Circuit Current Rating (SCCR) provided as part of equipment submittals into one O&M manual volume.

## **1.6 TRANSMITTAL OF SUBMITTALS**

- A. Operation and Maintenance Manuals.
1. Transmit all submittals to:
    - a. [The address specified in Specification Section 01 33 00 - SUBMITTALS].
  2. Transmittal form: Use Operation and Maintenance Manual Transmittal, Exhibit A.
  3. Transmittal numbering:
    - a. Number each submittal with the Specification Section number followed by a series number beginning with "-01" and increasing sequentially with each additional transmittal, followed by "-OM" (for example: 43 23 14-01-OM).
  4. Submit draft and final Operation and Maintenance Manual in electronic format (PDF) to Engineer, until manual is approved.

## **1.7 ENGINEER'S REVIEW ACTION**

- A. Draft Electronic (PDF) Submittals:
1. Engineer will review and indicate one of the following review actions:
    - a. A - ACCEPTABLE
    - b. B - FURNISH AS NOTED
    - c. C - REVISE AND RESUBMIT
    - d. D - REJECTED
  2. Submittals marked as Acceptable or Furnish As Noted will be retained; however, the transmittal form will be returned with a request for the final paper and electronic documents to be submitted.
  3. Copies of submittals marked as Revise and Resubmit or Rejected will be returned with the transmittal form marked to indicate deficient areas.
  4. Resubmit until approved.
- B. Final Paper Copy Submittals:
1. Engineer will review and indicate one of the following review actions:
    - a. A - ACCEPTABLE
    - b. D - REJECTED
  2. Submittals marked as Acceptable will be retained with the transmittal form returned as noted.

3. Submittals marked as Rejected will be returned with the transmittal form marked to indicate deficient areas.
4. Resubmit until approved.

**PART 2 - PRODUCTS - (NOT USED)**

**PART 3 - EXECUTION - (NOT USED)**

**END OF SECTION**





EXHIBIT A **Operation and Maintenance Manual**  
**Transmittal** \_\_\_\_\_ - \_\_\_\_\_ - OM  
(Spec Section) (Series)

Project Name:		Date Received:
Project Owner:		Checked By:
Contractor:	Owner:	Log Page:
Address:	Address:	HDR No.:
Attn:	Attn:	1st. Sub.      ReSub.

Date Transmitted:	Previous Transmittal Date:			
No.	Description of Item	Manufacturer	Dwg. or Data No.	Action Taken*
Copies				

Remarks:

To:	From:
	HDR Engineering, Inc.

Date:

\* The Action designated above is in accordance with the following legend:

A - Acceptable, provide one (1) additional paper copy and two (2) electronic copies on CD-ROM for final review.

B - Furnish as Noted

C - Revise and Resubmit

This Operation and Maintenance Manual Submittal is deficient in the following area:

1. Equipment Records.
2. Functional description.
3. Assembly, disassembly, installation, alignment, adjustment & checkout instructions.
4. Operating instructions.

5. Lubrication & maintenance instructions.
6. Troubleshooting guide.
7. Parts list and ordering instructions.
8. Organization (binder, binder titles, index & tabbing).
9. Wiring diagrams & schematics specific to installation.
10. Outline, cross section & assembly diagrams.
11. Test data & performance curves.
12. Tag or equipment identification numbers.
13. Inclusion of all components & subcomponents.
14. Other - see comments.

D - Rejected

Comments:

By		Date			
Distribution:	Contractor	File	Field	Owner	Other

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## Equipment Data and Spare Parts Summary

Project Name			Specification Section:
Equipment Name			Year Installed:
Project Equipment Tag No(s).			
Equipment Manufacturer			Project/Order No.
Address			Phone
Fax	Web Site	E-mail	
Local Vendor/Service Center			
Address			Phone
Fax	Web Site	E-mail	

## MECHANICAL NAMEPLATE DATA

Equip.			Serial No.		
Make			Model No.		
ID No.	Frame No.	HP	RPM	Cap.	
Size	TDH	Imp. Sz.	CFM	PSI	
Other:					

## ELECTRICAL NAMEPLATE DATA

Equip.					Serial No.				
Make					Model No.				
ID No.	Frame No.	HP	V.	Amp.	HZ	PH	RPM	SF	
Duty	Code	Ins. Cl.	Type	NEMA	C Amb.	Temp. Rise	Rating		
Other:									

## SPARE PARTS PROVIDED PER CONTRACT

[illegible]

## RECOMMENDED SPARE PARTS

[illegible]

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## EXHIBIT B2

## Equipment Record

## Recommended Maintenance Summary

Equipment Description	Project Equip. Tag No(s).							
RECOMMENDED BREAK-IN MAINTENANCE (FIRST OIL CHANGES, ETC.)	INITIAL COMPLETION * FOLLOWING START-UP							
	D	W	M	Q	S	A	RT	Hours
RECOMMENDED PREVENTIVE MAINTENANCE	PM TASK INTERVAL *							
	D	W	M	Q	S	A	RT	Hours

\* D = Daily    W = Weekly    M = Monthly    Q = Quarterly    S = Semiannual    A = Annual    Hours = Run Time Interval

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**EXHIBIT B3****Equipment Record****Lubrication Summary**

Equipment Description			Project Equip. Tag No(s).			
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					
Lubricant Point						
Lubricant Type		Manufacturer	Product	AGMA #	SAE #	ISO
	1					
	2					
	3					
	4					
	5					

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**SECTION 01 61 03**  
**EQUIPMENT - BASIC REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Requirements of this Specification Section apply to all equipment provided on the Project including those found in other Divisions even if not specifically referenced in individual "Equipment" Articles of those Specification Sections.
- B. Related Sections include but are not necessarily limited to:
  - 1. Division 00 - Procurement and Contracting Requirements.
  - 2. Division 01 - General Requirements.
  - 3. Section 01 81 10 - Wind and Seismic Design Criteria.
  - 4. Section 03 15 19 - Anchorage to Concrete.
  - 5. Section 03 31 30 - Concrete, Materials and Proportioning.
  - 6. Section 05 50 00 - Metal Fabrications.
  - 7. Section 07 92 00 - Joint Sealants.
  - 8. Section 09 96 00 - High Performance Industrial Coatings.
  - 9. Section 10 14 00 - Identification Devices.
  - 10. Section 26 05 09 - Motors.
  - 11. Section 26 29 23 - Variable Frequency Drives - Low Voltage.
  - 12. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.
  - 13. Section 40 91 10 - Primary Elements and Transmitters.
  - 14. Section 40 67 00 - Control System Equipment Panels and Racks.

**1.2 QUALITY ASSURANCE**

- A. Referenced Standards:
  - 1. American Bearing Manufacturers Association (ABMA).
  - 2. American Gear Manufacturers Association (AGMA).
  - 3. ASTM International (ASTM):
    - a. E1934, Standard Guide for Examining Electrical and Mechanical Equipment with Infrared Thermography.
    - b. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
  - 4. Hydraulic Institute (HI):
    - a. 9.6.4, Centrifugal and Vertical Pumps for Vibration Measurements and Allowable Valves.
  - 5. International Electrotechnical Commission (IEC).
  - 6. Institute of Electrical and Electronics Engineers, Inc. (IEEE).
  - 7. International Organization for Standardization (ISO):
    - a. 1940, Mechanical Vibration - Balance Quality Requirements for Rotors in a Constant (Rigid) State - Part 1: Specification and Verification of Balance Tolerances.
    - b. 21940-11, Mechanical Vibration - Rotor Balancing - Part 11: Procedures and Tolerances for Rotors with Rigid Behavior.
  - 8. National Electrical Manufacturers Association (NEMA):
    - a. 250, Enclosures for Electrical Equipment (1000 Volts Maximum).
    - b. ICS 6, Enclosures for Industrial Control and System.
    - c. MG 1, Motors and Generators.
  - 9. InterNational Electrical Testing Association (NETA):
    - a. ATS, Acceptance Testing Specification for Electrical Power Distribution Equipment and Systems.
  - 10. National Fire Protection Association (NFPA):
    - a. 70, National Electrical Code (NEC).

11. National Institute for Certification in Engineering Technologies (NICET).
  12. National Institute of Standards and Technology (NIST).
  13. Occupational Safety and Health Administration (OSHA):
    - a. 29 CFR 1910, Occupational Safety and Health Standards, referred to herein as OSHA Standards.
  14. Underwriters Laboratories, Inc. (UL).
    - a. 508, Standard for Safety Industrial Control Equipment.
    - b. 508A, Standard for Safety Industrial Control Panels.
    - c. 698A, Standard for Industrial Control Panels Relating to Hazardous (Classified) Locations.
  15. Vibration Institute.
- B. Natural frequency analysis firm:
1. An independent firm, whose sole or principal part of its business is the calculation of and analysis of natural frequencies of rotating equipment.
  2. Minimum of 10 years experience.
  3. Employs a registered professional engineer who has experience in finite element analysis, rotordynamic analysis and experimental modal analysis.
    - a. Minimum five years combined field testing and data analysis experience.
    - b. Qualified Vibration Category III certification from the Vibration Institute.
- C. Vibration Testing Program:
1. Testing firm:
    - a. An independent firm performing, as the sole or principal part of its business for a minimum of 10 years, the inspection, testing, calibration, and adjusting of systems.
    - b. Must have an established monitoring and testing equipment calibration program with accuracy traceable in an unbroken chain, according to NIST.
  2. Field personnel:
    - a. Minimum of three years field experience covering all phases of field vibration testing and data gathering.
    - b. Qualified Vibration Category II certification from the Vibration Institute.
  3. Analysis personnel:
    - a. Minimum five years combined field testing and data analysis experience.
    - b. Qualified Vibration Category III certification from the Vibration Institute.
- D. Infrared Thermography Testing Program:
1. Testing firm:
    - a. An independent firm performing, as the sole or principal part of its business for a minimum of 10 years, the inspection, testing, calibration, and adjusting of systems.
    - b. Must have an established monitoring and testing equipment calibration program with accuracy traceable in an unbroken chain, according to NIST.
  2. Field personnel:
    - a. Minimum of one year field experience covering all phases of field thermography testing and data gathering.
    - b. Supervisor certified by NETA or NICET.
  3. Analysis personnel:
    - a. Minimum three years combined field testing and data analysis experience.
    - b. Supervisor certified by NETA or NICET.
- E. Electrical Equipment and Connections Testing Program:
1. Testing firm:
    - a. An independent firm performing, as the sole or principal part of its business for a minimum of 10 years, the inspection, testing, calibration, and adjusting of systems.
    - b. Must have an established monitoring and testing equipment calibration program with accuracy traceable in an unbroken chain, according to NIST.
  2. Field personnel:
    - a. Minimum of one year field experience covering all phases of electrical equipment inspection, testing, and calibration.

- b. Relay test technician having previous experience with testing and calibration of relays of the same manufacturer and type used on project and proficient in setting and testing the types of protection elements used.
    - c. Supervisor certified by NETA or NICET.
  - 3. Analysis personnel:
    - a. Minimum three years combined field testing and data analysis experience.
    - b. Supervisor certified by NETA or NICET.
- F. Miscellaneous:
  - 1. A single manufacturer of a "product" shall be selected and utilized uniformly throughout Project even if:
    - a. More than one manufacturer is listed for a given "product" in Specifications.
    - b. No manufacturer is listed.
  - 2. Equipment, electrical assemblies, related electrical wiring, instrumentation, controls, and system components shall fully comply with specific NEC requirements related to area classification and to NEMA 250 and NEMA ICS 6 designations [shown on Electrical Power Drawings] [and defined in the Electrical specifications].
  - 3. Variable speed equipment applications: The driven equipment manufacturer shall have single source responsibility for coordination of the equipment and VFD system and verify their compatibility.

### 1.3 DEFINITIONS

- A. Product: Manufactured materials and equipment.
- B. Major Equipment Supports - Supports for Equipment:
  - 1. Located on or suspended from elevated slabs with supported equipment weighing 2000 LBS or greater, or;
  - 2. Located on or suspended from roofs with supported equipment weighing 500 LBS or greater, or;
  - 3. Located on slab-on-grade or earth with supported equipment weighing 5000 LBS or more.
- C. Equipment:
  - 1. One or more assemblies capable of performing a complete function.
  - 2. Mechanical, electrical, instrumentation or other devices requiring an electrical, pneumatic, electronic or hydraulic connection.
  - 3. Not limited to items specifically referenced in "Equipment" articles within individual Specifications.
- D. Installer or Applicator:
  - 1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
  - 2. Installer and applicator are synonymous.

### 1.4 SUBMITTALS

- A. Shop Drawings:
  - 1. General for all equipment:
    - a. See Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
    - b. Data sheets that include manufacturer's name and complete product model number.
      - 1) Clearly identify all optional accessories that are included.
    - c. Acknowledgement that products submitted comply with the requirements of the standards referenced.
    - d. Manufacturer's delivery, storage, handling, and installation instructions.
    - e. Equipment identification utilizing numbering system and name utilized in Drawings.
    - f. Equipment installation details:
      - 1) Location of anchorage.
      - 2) Type, size, and materials of construction of anchorage.
      - 3) Anchorage setting templates.

- 4) Manufacturer's installation instructions.
- g. Equipment area classification rating.
- h. Shipping and operating weight.
- i. Equipment physical characteristics:
  - 1) Dimensions (both horizontal and vertical).
  - 2) Materials of construction and construction details.
- j. Equipment factory primer and paint data.
- k. Manufacturer's recommended spare parts list.
- l. Equipment lining and coatings.
- m. Equipment utility requirements include air, natural gas, electricity, and water.
- n. Ladders and platforms provided with equipment:
  - 1) Certification that all components comply fully with OSHA requirements.
  - 2) Full details of construction/fabrication.
  - 3) Scaled plan and sections showing relationship to equipment.
2. Mechanical and process equipment:
  - a. Operating characteristics:
    - 1) Technical information including applicable performance curves showing specified equipment capacity, rangeability, and efficiencies.
    - 2) Brake horsepower requirements.
    - 3) Copies of equipment data plates.
  - b. Piping and duct connection size, type and location.
  - c. Equipment bearing life certification.
  - d. Equipment foundation data:
    - 1) Equipment center of gravity.
    - 2) Criteria for designing vibration, special or unbalanced forces resulting from equipment operation.
3. Electric motor:
  - a. Motor manufacturer and model number.
  - b. Complete motor nameplate data.
  - c. Weight.
  - d. NEMA design type.
  - e. Enclosure type.
  - f. Frame size.
  - g. Winding insulation class and temperature rise.
  - h. Starts per hour.
  - i. Performance data:
    - 1) Motor speed-torque curve superimposed over driven machine speed-torque curve during start-up acceleration and at rated terminal voltage a minimum permissible or specified terminal voltage for all motors over [ ] HP.
    - 2) Time-current plots with acceleration versus current and thermal damage curves at the operating and ambient temperatures and at rated terminal voltage and minimum permissible or specified terminal voltage for all motors over [ ] HP.
    - 3) Guaranteed minimum efficiencies at 100 PCT, 75 PCT, and 50 PCT of full load.
    - 4) Guaranteed minimum power factor at 100 PCT, 75 PCT, and 50 PCT of full load.
    - 5) Locked rotor and full load current at rated terminal voltage and minimum permissible or specified terminal voltage.
    - 6) Starting, full load, and breakdown torque at rated terminal voltage and minimum permissible or specified terminal voltage.
  - j. Bearing data and lubrication system.
  - k. Natural frequency calculations for:
    - 1) Completed assembly including but not limited to the equipment base, rotating piece of equipment, and the rotating piece of equipment driver.
    - 2) Individual piece of rotating equipment.
    - 3) Equipment driver and connected gear reducer, if applicable.
  - l. Thermal protection system including recommended alarm and trip settings for winding and bearing RTD's.



- m. [Maximum permissible capacitor (kVAC) that can be connected to the motor.]
- n. [Recommended size of power factor correction capacitors to improve power factor to 0.95 lagging when operated at full load.]
- o. Fabrication and/or layout drawings:
  - 1) Dimensioned outlined drawing.
  - 2) Connection diagrams including accessories (strip heaters, thermal protection, etc.).
- p. Certifications:
  - 1) When utilized with a reduced voltage starter, certify that motor and driven equipment are compatible.
  - 2) When utilized with a variable frequency controller, certify motor is inverter duty and the controller and motor are compatible.
    - a) Include minimum speed at which the motor may be operated for the driven machinery.
- q. Electrical gear:
  - 1) Unless specified in a narrow-scope Specification Section, provide the following:
    - a) Equipment ratings: Voltage, continuous current, kVa, watts, short circuit with stand, etc., as applicable.
  - 2) Control panels:
    - a) Panel construction.
    - b) Point-to-point ladder diagrams.
    - c) Scaled panel face and subpanel layout.
    - d) Technical product data on panel components.
    - e) Panel and subpanel dimensions and weights.
    - f) Panel access openings.
    - g) Nameplate schedule.
    - h) Panel anchorage.
    - i) Short Circuit Current Rating (SCCR) nameplate marking per NFPA 70. Include any required calculations.
- 4. Systems schematics and data:
  - a. Provide system schematics where required in system specifications.
    - 1) Acknowledge all system components being supplied as part of the system.
    - 2) Utilize equipment, instrument and valving tag numbers defined in the Contract Documents for all components.
    - 3) Provide technical data for each system component showing compliance with the Contract Document requirements.
    - 4) For piping components, identify all utility connections, vents and drains which will be included as part of the system.
- 5. For factory painted equipment, provide paint submittals in accordance with Section 09 96 00.
- 6. Qualifications for:
  - a. Natural frequency analysis firm and personnel.
  - b. Vibration testing firm and personnel.
  - c. Infrared thermography testing firm and personnel.
  - d. Electrical equipment and connections testing firm and personnel.
- 7. Equipment Monitoring and Testing plans, in accordance with PART 3 of this Specification Section:
  - a. Natural frequency analysis and calculations.
  - b. Vibration testing.
  - c. Thermography testing.
  - d. Electrical equipment and connection testing.
- B. Factory Test Reports:
  - 1. Natural frequency bump test reports where required for rotating equipment.
    - a. Minimum characteristics of impact hammer.
      - 1) Frequency Range 1 kHz.
      - 2) Range (5v output) 5,000 LBF (22,200 N).

- 3) Hammer Sensitivity (7pprox.) 1 mV/lbf (0.23 mV/N).
    - 4) Resonant Frequency 12 kHz
  - 2. Motor, equipment and final assembled equipment including motor.
    - a. Determine natural frequency of assembled motor prior to shipping to OEM or job site.
      - 1) Individual motor fastened to an "infinitely rigid" mass at the same bolt circle as the final assembled equipment.
    - b. Determine natural frequency of the pump.
      - 1) Pump fastened to an "infinitely rigid" mass at the same bolt circle as the final assembled equipment.
    - c. Determine natural frequency of the pump/motor assembly.
      - 1) Pump/motor assembly fastened to an "infinitely rigid" mass at the same bolt circle as the final field assembled equipment.
    - d. For this use, the "infinitely rigid" mass shall be at least 10 times the weight of the equipment being tested.
  - 3. Submit natural frequency report(s) for approval prior to shipment.
  - 4. Equipment performance tests.
    - a. As listed in individual equipment specifications.
- C. Contract Closeout Information:
- 1. Operation and Maintenance Data:
    - a. See Section 01 33 04 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.
- D. Informational Submittals:
- 1. Notification, at least one week in advance, that testing will be conducted at factory.
  - 2. Certification from equipment manufacturer that all manufacturer-supplied control panels that interface in any way with other controls or panels have been submitted to and coordinated with the supplier/installer of those interfacing systems.
  - 3. Submit sample Manufacturer's Field Service Report (MFSR). Report shall use manufacturer's standard report or use the form in the Exhibits and have at least the following information:
    - a. Certification that equipment has been installed properly, has been initially started up, has been calibrated and/or adjusted as required, and is ready for operation.
    - b. Certification for major equipment supports that equipment foundation design loads shown on the Drawings or specified have been compared to actual loads exhibited by equipment provided for this Project and that said design loadings are equal to or greater than the loads produced by the equipment provided.
    - c. Motor test reports.
    - d. Field noise testing reports if such testing is specified.
    - e. Preliminary field quality control testing format to be used as a basis for final field quality control reporting.
    - f. Provide three bound final written reports documenting natural frequency testing, vibration monitoring and testing for specified equipment.
      - 1) Include the acceptance criteria of all equipment tested.
      - 2) Provide individual tabbed sections for information associated with each piece of tested equipment.
    - g. Certification prior to Project closeout that electrical panel drawings for manufacturer-supplied control panels truly represent panel wiring including any field-made modifications.
    - h. Testing and monitoring reports in accordance with PART 3 of this Specification Section.
    - i. Certification that driven equipment and VFD are compatible.
  - 4. Submit completed Manufacturer's Field Service Report (MFSR) for each piece of equipment supplied.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
  - 1. Motors:
    - a. Baldor.
    - b. General Electric.
    - c. Hyundai Heavy Industries.
    - d. Marathon Electric.
    - e. Rockwell - Reliance.
    - f. Siemens.
    - g. TECO-Westinghouse.
    - h. Toshiba U.S.
    - i. U.S. Motors, Nidec Motor Corporation.
    - j. WEG.
  - 2. Mechanical variable speed drives:
    - a. Reeves.
    - b. U.S. Motors (VariDrive).
- B. Submit request for substitution in accordance with Section 01 25 13.

### **2.2 MANUFACTURED UNITS**

- A. Electric Motors:
  - 1. Where used in conjunction with adjustable speed AC or DC drives, provide motors that are fully compatible with the speed controllers.
  - 2. Design for frequent starting duty equivalent to duty service required by driven equipment.
  - 3. Design for full voltage starting.
  - 4. Design bearing life based upon actual operating load conditions imposed by driven equipment.
  - 5. Size for altitude of Project.
  - 6. Furnish with stainless steel nameplates which include all data required by NEC Article 430.
  - 7. Use of manufacturer's standard motor will be permitted on integrally constructed motor driven equipment specified by model number in which a redesign of the complete unit would be required in order to provide a motor with features specified.
  - 8. AC electric motors less than 1/3 HP:
    - a. Single phase, 60 Hz, designed for the supply voltage shown on the Drawings.
    - b. Permanently lubricated sealed bearings conforming to ABMA standards.
    - c. Built-in manual reset thermal protector or integrally mounted manual motor starter with thermal overload element with stainless steel enclosure.
  - 9. AC electric motors 1/3 to 1 HP:
    - a. Single or 3 PH, 60 Hz, designed for the supply voltage shown on the Drawings.
    - b. Permanently lubricated sealed bearings conforming to ABMA standards.
      - 1) For single phase motors, provide built-in manual reset thermal protector or integrally mounted manual motor starter with thermal overload element.
  - 10. AC electric motors 1-1/2 to 10 HP:
    - a. Single or 3 PH, 60 Hz, designed for the supply voltage shown on the Drawings.
    - b. Permanently lubricated sealed bearings conforming to ABMA standards.
    - c. For vertical motors provide 15 year, average-life thrust bearings conforming to ABMA standards.
  - 11. AC electric motors greater than 10 HP:
    - a. Single or 3 PH, 60 Hz, designed for the supply voltage shown on the Drawings.
    - b. Oil or grease lubricated antifriction bearings conforming to ABMA standards.
      - 1) Design bearing life for 90 PCT survival rating at 50,000 HRS of operation for motors up to and including 100 HP.

- 2) For motors greater than 100 HP, design bearing life for 90 PCT survival rating at 100,000 HRS of operation.
- c. For vertical motors provide 15 year, average-life thrust bearings conforming to ABMA standards.
- d. Thermal protection:
  - 1) For motors 50 HP and above controlled from a variable frequency drive and for all other motors 100 HP and above, provide integral thermal detectors with normally closed contacts that will open on overtemperature or resistance type temperature detector (RTD) complete with monitor and alarm panel having a normally closed contact that will open on overtemperature.
    - a) Two thermal sensing devices per phase in each phase hot-spot location.
    - b) Monitor and alarm panel:
      - (1) For constant speed motors, install panel in and energize from the motor starter equipment.
      - (2) For variable speed motors, install panel in and energize from the variable speed drive equipment.
12. Severe duty motor to have the following minimum features:
  - a. All cast iron construction.
  - b. Gasketed conduit box.
  - c. Epoxy finish for corrosion protection.
  - d. Hydrosopic varnish on windings for corrosion protection.
  - e. Drain plug and breather.
- B. NEMA Design Squirrel Cage Induction Motors:
  1. Provide motors designed and applied in compliance with NEMA and IEEE for the specific duty imposed by the driven equipment.
  2. Motors to meet NEMA MG 1 (NEMA Premium) [local jurisdiction] efficiencies.
  3. Do not provide motors having a locked rotor kVA per HP exceeding the NEMA standard for the assigned NEMA code letter.
  4. For use on variable frequency type adjustable speed drives, provide:
    - a. Induction motors that are in compliance with NEMA MG 1, Part 31.
    - b. Nameplate identification meeting NEMA MG 1 Part 31 requirements.
    - c. Insulated drive end bearing on all motors.
    - d. Insulated non-drive end bearings, at a minimum, on all motors with horizontal shaft 100 HP and larger.
    - e. An insulated bearing carrier on the non-drive end for vertical shaft motors 100 HP and larger.
    - f. Shaft grounding ring on all motors:
      - 1) Factory installed, maintenance free, circumferential, bearing protection ring with conductive microfiber shaft contacting material.
      - 2) Electro Static Technology AEGIS SGR Bearing Protection Ring or approved equal.
    - g. Have the following minimum turndown ratio without the use of additional cooling, such as a blower, to provide continuous supply of cooling air over the motor.
      - 1) Variable torque: 10:1.
      - 2) Constant torque: 6:1.
  5. Design motor insulation in accordance with NEMA standards for Class F insulation with Class B temperature rise above a 40 DEGC ambient.
  6. Design motors for continuous duty.
  7. Size motors having a 1.0 service factor so that nameplate HP is a minimum of 15 PCT greater than the maximum HP requirements of the driven equipment over its entire operating range.
    - a. As an alternative, furnish motors with a 1.15 service factor and size so that nameplate HP is at least equal to the maximum HP requirements of the driven equipment over its entire operating range.

8. Motor enclosure and winding insulation application:
  - a. The following shall apply unless modified by specific Specification Sections:

MOTOR LOCATION	MOTOR ENCLOSURE / WINDING INSULATION
Unclassified Indoor Areas	[DPFG (for horizontal motors)], [WP-I (for vertical motors)] [Standard Insulation], [TEFC, Standard Insulation]
Wet indoor Areas	[TEFC, Standard Insulation] [TEFC, Encapsulated Windings] [WP-II (for vertical motors)]
Wet outdoor Areas	[TEFC, Extra Dip and Bake for Moisture] [TEFC Encapsulated Windings] [WP-II (for vertical motors)]
Corrosive Areas	TEFC, Severe/ Chemical Duty
Class I, Division 1 Areas	Explosion Proof, Approved for Class I Division 1 Locations
Class II, Division 1 Areas	Explosion Proof, Approved for Class II Division 1 Locations
Class I or Class II, Division 2 Areas	Explosion Proof, Approved for Division 1 Locations or TEFC with maximum external frame temperature compatible with the gas or dust in the area, [Extra Dip and Bake for moisture] [Encapsulated Windings]

NOTE: Provide TENV motors in the smaller horsepower ratings where TEFC is not available.

9. Provide oversize conduit box complete with clamp type grounding terminals inside the conduit box.
10. Balance motors to ISO G2.5 level.
  - a. Submit prior to shipping to OEM or job site.
- C. Submersible Motors: Refer to individual narrow-scope Specification Sections for submersible motor requirements.
- D. V-Belt Drive:
  1. Provide each V-belt drive with sliding base or other suitable tension adjustment.
  2. Provide V-belt drives with a service factor of at least 1.6 at maximum speed.
  3. Provide staticproof belts.
- E. Mechanical Variable Speed Drives:
  1. Oil-lubricated shaft-mounted reduction gear drive capable of 300 PCT shock load and providing a 1.5 service factor in accordance with AGMA.
  2. Assure infinite speed adjustment over a [\_\_\_\_]:1 range.
  3. Secure drive to equipment base.
  4. Flexible coupling between drive shaft and equipment shaft.
- F. Vibration Isolators:
  1. Provide all equipment subject to vibration with restrained spring type vibration isolators or pads according to the manufacturer's written recommendation.
- G. Space Heaters:
  1. Silicone rubber strip type, 120 V rated.
  2. Provided on:
    - a. All motors 10 HP and larger mounted outdoors.
    - b. Indoor motors in humid environments as indicated.

## 2.3 COMPONENTS

- A. Gear Drives and Drive Components:
  1. Size drive equipment capable of supporting full load including losses in speed reducers and power transmission.
  2. Provide nominal input horsepower rating of each gear or speed reducer at least equal to nameplate horsepower of drive motor.

3. Design drive units for 24 HR continuous service, constructed so oil leakage around shafts is precluded.
4. Utilize gears, gear lubrication systems, gear drives, speed reducers, speed increasers and flexible couplings meeting applicable standards of AGMA.
5. Gear reducers:
  - a. Provide gear reducer totally enclosed and oil lubricated.
  - b. Utilize antifriction bearings throughout.
  - c. Provide worm gear reducers having a service factor of at least 1.20.
  - d. Furnish other helical, spiral bevel, and combination bevel-helical gear reducers with a service factor of at least 1.50.

## 2.4 ACCESSORIES

- A. Guards:
  1. Provide each piece of equipment having exposed moving parts with full length, easily removable guards, meeting OSHA requirements.
  2. Interior applications:
    - a. Construct from expanded galvanized steel rolled to conform to shaft or coupling surface.
    - b. Utilize non-flattened type 16 GA galvanized steel with nominal 1/2 IN spacing.
    - c. Connect to equipment frame with hot-dip galvanized bolts and wing nuts.
  3. Exterior applications:
    - a. Construct from 16 GA stainless steel or aluminum.
    - b. Construct to preclude entrance of rain, snow, or moisture.
    - c. Roll to conform to shaft or coupling surface.
    - d. Connect to equipment frame with stainless steel bolts and wing nuts.
- B. Anchorage:
  1. Cast-in-place anchorage:
    - a. Provide ASTM F593, Type 316 stainless steel anchorage for all equipment.
    - b. Configuration and number of anchor bolts shall be per manufacturer's recommendations.
    - c. Provide two nuts for each bolt.
  2. Drilled anchorage:
    - a. Adhesive anchors per Section 03 15 19.
    - b. Epoxy grout per Section 03 31 30.
    - c. Threaded rods same as cast-in-place.
- C. Data Plate:
  1. Attach a stainless steel data plate to each piece of rotary or reciprocating equipment.
  2. Permanently stamp information on data plate including manufacturer's name, equipment operating parameters, serial number and speed.
- D. Gages:
  1. Provide gages in accordance with Section 40 91 10.
  2. Provide at the following locations:
    - a. Inlet and outlet of all reciprocating, centrifugal and positive displacement mechanical and process equipment.
    - b. At locations identified on Drawings.
  3. Utilize tapping sleeves for mounting per Section 40 05 00.
- E. Lifting Eye Bolts or Lugs:
  1. Provide on all equipment 50 LBS or greater.
  2. Provide on other equipment or products as specified in the narrow-scope Specification Sections.
- F. Platforms and Ladders:
  1. Design and fabricate in accordance with OSHA Standards.

2. Fabricate components from [painted carbon steel] [galvanized steel] [stainless steel grade [304] [316]] [aluminum] [fiberglass-reinforced plastic].
3. Provide platform surface: Non-skid [grating] [checkered plate], unless specified in narrow-scope Specification Sections.

## 2.5 FABRICATION

- A. Design, fabricate, and assemble equipment in accordance with modern engineering and shop practices.
- B. Manufacture individual parts to standard sizes and gages so that repair parts, furnished at any time, can be installed in field.
- C. Furnish like parts of duplicate units to be interchangeable.
- D. Ensure that equipment has not been in service at any time prior to delivery, except as required by tests.
- E. Furnish equipment which requires periodic internal inspection or adjustment with access panels which will not require disassembly of guards, dismantling of piping or equipment or similar major efforts.
  1. Quick opening but sound, securable access ports or windows shall be provided for inspection of chains, belts, or similar items.
- F. Provide common, lipped base plate mounting for equipment and equipment motor where said mounting is a manufacturer's standard option.
  1. Provide drain connection for 3/4 IN PVC tubing.
- G. Machine the mounting feet of rotating equipment.
- H. Fabricate equipment which will be subject to Corrosive Environment in such a way as to avoid back to back placement of surfaces that cannot be properly prepared and painted.
  1. When such back to back fabrication cannot be avoided, provide continuous welds to seal such surfaces from contact with corrosive environment.
  2. Where continuous welds are not practical, after painting seal the back to back surfaces from the environment in accordance with Section 07 92 00.
- I. Natural frequency/critical Speed:
  1. All rotating parts accurately machined and in as near perfect rotational balance as practicable.
  2. Excessive vibration is sufficient cause for equipment rejection.
  3. Ratio of all rotative speeds to natural frequency/critical speed of a unit or components: Greater than 1.2.
- J. Control Panels Engineered and Provided with the Equipment by the Manufacturer:
  1. Manufacturer's standard design for components and control logic unless specific requirements are specified in the specific equipment Specification Section.
  2. NEMA or IEC rated components are acceptable, whichever is used in the manufacturer's standard engineered design, unless specific requirements are required in the specific equipment Specification Section.
  3. Affix entire assembly with a UL 508A or UL 698A label "Listed Enclosed Industrial Control Panel" prior to delivery.
    - a. Control panels without an affixed UL 508A or UL 698A label shall be rejected.
  4. Provide equipment or control panels with Short Circuit Current Rating (SCCR) labeling as required by NFPA 70 and other applicable codes.
    - a. Determine the SCCR rating by one of the following methods:
      - 1) Method 1: SCCR rating meets or exceeds the available fault current of the source equipment when indicated on the Drawings.
      - 2) Method 2: SCCR rating meets or exceeds the source equipment's Amp Interrupting Current (AIC) rating as indicated on the Drawings.

- 3) Method 3: SCCR rating meets or exceeds the calculated available short circuit current at the control panel.
- b. The source equipment is the switchboard, panelboard, motor control center or similar equipment where the control panel circuit originates.
- c. For Method 3, provide calculations justifying the SCCR rating. Utilize source equipment available fault current or AIC rating as indicated on the Drawings.

## 2.6 SHOP OR FACTORY PAINT FINISHES

- A. Electrical Equipment:
  1. Provide factory-applied paint coating system(s) for all electrical equipment components except those specified in Section 09 96 00 to receive field painting.
    - a. Field painted equipment: See Section 09 96 00 for factory applied primer/field paint compatibility requirements.
- B. Field paint other equipment in accordance with Section 09 96 00.
  1. See Section 09 96 00 for factory applied primer/field paint compatibility requirements.

## 2.7 SOURCE QUALITY CONTROL

- A. Motor Tests:
  1. Test motors in accordance with NEMA and IEEE standards.
  2. Provide routine test for all motors.
  3. The Owner reserves the right to select and have tested, either routine or complete, any motor included in the project.
    - a. The Owner will pay all costs, including shipping and handling, for all motors successfully passing the tests.
    - b. Pay all costs, including shipping and handling, for all motors failing the tests.
    - c. If two successive motors of the same manufacturer fail testing, the Owner has the right to reject all motors from that manufacturer.
- B. Balance:
  1. Unless specified otherwise, for all equipment 10 HP or greater, all rotating elements in motors, pumps, blowers, and centrifugal compressors shall be fully assembled, including coupling hubs, before being statically and dynamically balanced. Balance all rotating elements to the following criteria, per ISO 21940-11:

$$U_{per} = \frac{G \times 6.015 \times W/2}{N}$$

Where:

$U_{per}$  = Permissible residual unbalance for each correction plane in ounce-inches (OZ-IN). See ISO 21940-11 for acceptable values.

G = ISO Balance Quality Grade Number, per ISO 21940-11

W = Rotor weight in pounds

N = Maximum continuous operating RPM

- a. Where specified, balancing reports, demonstrating compliance with this requirement, shall be submitted as product data.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install equipment as shown on Drawings and in accordance with manufacturer's directions.
- B. Utilize templates for anchorage placement for slab-mounted equipment.
- C. For equipment having drainage requirements such as seal water, provide 3/4 IN PVC or clear plastic tubing from equipment base to nearest floor or equipment drain.



1. Route clear of major traffic areas and as approved by Engineer.
- D. DO NOT construct foundations until major equipment supports are approved.
- E. Extend all non-accessible grease fittings using stainless steel tubing to a location which allows easy access of fittings from closest operating floor level.
- F. Equipment Base:
  1. Construct level in both directions.
  2. Take particular care at anchor bolt locations so these areas are flat and level.
- G. Machine Base:
  1. Mount machine base of rotating equipment on equipment base.
    - a. Level in both directions, using a machinist level, according to machined surfaces on base.
  2. Level machine base on equipment base and align couplings between driver and driven unit using stainless steel blocks and shims.
    - a. Blocks and shims milled flat and coplanar of both faces.
    - b. Maximum of 3 shims under each foot.
    - c. Size blocks and shims to provide solid support at each mounting bolt location.
      - 1) Provide area size of blocks and shims approximately 1-1/2 times area support surface at each mounting bolt point.
    - d. Provide blocks and shims at each mounting bolt.
      - 1) Furnish blocks and shims that are square shape with "U" cut out to allow blocks and shims to be centered on mounting bolts.
    - e. After all leveling and alignment has been completed and before grouting, tighten mounting bolts to proper torque value.
- H. Rotating equipment Couplings:
  1. Align in the annular and parallel positions.
    - a. For equipment rotating at 1200 RPM or less, align both annular and parallel within 0.001 IN tolerance for couplings 4 IN size and smaller.
    - b. Couplings larger than 4 IN size: Increase tolerance 0.0005 IN per inches of coupling diameter, i.e., allow 6 IN coupling 0.002 IN tolerance, and allow a 10 IN coupling 0.004 IN tolerance.
    - c. For equipment rotating at speeds greater than 1200 RPM allow both annular and parallel positions within a tolerance rate of 0.00025 IN per inch coupling diameter.
  2. If equipment is delivered as a mounted unit from factory, verify factory alignment on site after installation and realigned if necessary.
  3. Check surfaces for runout before attempting to trim or align units.
- I. Grouting:
  1. After machine base has been shimmed, leveled onto equipment base, couplings aligned and mounting bolts tightened to correct torque value, place a dam or formwork around base to contain grouting between equipment base and equipment support pad.
    - a. Extend dam or formwork to cover leveling shims and blocks.
    - b. Do not use nuts below the machine base to level the unit.
  2. Saturate top of roughened concrete subbase with water before grouting.
    - a. Add grout until entire space under machine base is filled to the top of the base underside.
    - b. Puddle grout by working a stiff wire through the grout and vent holes to work grout in place and release any entrained air in the grout or base cavity.
  3. When the grout has sufficiently hardened, remove dam or formwork and finish the exposed grout surface to fine, smooth surface.
    - a. Cover exposed grout surfaces with wet burlap and keep covering sufficiently wet to prevent too rapid evaporation of water from the grout.
    - b. When the grout has fully hardened (after a minimum of seven days) tighten all anchor bolts to engage equipment base to grout, shims, and equipment support pad.
    - c. Recheck driver-driven unit for proper alignment.

### **3.2 INSTALLATION CHECKS**

- A. For all equipment specifically required in detailed specifications, secure services of experienced, competent, and authorized representative(s) of equipment manufacturer to visit site of work and inspect, check, adjust and approve equipment installation.
  - 1. In each case, representative(s) shall be present during placement and start-up of equipment and as often as necessary to resolve any operational issues which may arise.
- B. Secure from equipment manufacturer's representative(s) a written report certifying that equipment:
  - 1. Has been properly installed and lubricated.
  - 2. Is in accurate alignment.
  - 3. Is free from any undue stress imposed by connecting piping or anchor bolts.
  - 4. Has been operated under full load conditions and that it operated satisfactorily.
    - a. Secure and deliver a field written report to Owner immediately prior to leaving jobsite.
- C. No separate payment shall be made for installation checks.
  - 1. All or any time expended during installation check does not qualify as Operation and Maintenance training or instruction time when specified.

### **3.3 IDENTIFICATION OF EQUIPMENT AND HAZARD WARNING SIGNS**

- A. Identify equipment and install hazard warning signs in accordance with Section 10 14 00.

### **3.4 FIELD PAINTING AND PROTECTIVE COATINGS**

- A. For required field painting and protective coatings, comply with Section 09 96 00, High Performance Industrial Coatings.

### **3.5 WIRING CONNECTIONS AND TERMINATION**

- A. Clean wires before installing lugs and connectors.
- B. Coat connection with oxidation eliminating compound for aluminum wire.
- C. Terminate motor circuit conductors with copper lugs bolted to motor leads.
- D. Tape stripped ends of conductors and associated connectors with electrical tape.
  - 1. Wrapping thickness shall be 150 PCT of the conductor insulation thickness.
- E. Connections to carry full ampacity of conductors without temperature rise.
- F. Terminate spare conductors with electrical tape.

### **3.6 FIELD QUALITY CONTROL**

- A. General:
  - 1. Furnish equipment manufacturer's field quality control services and testing as specified in the individual equipment Specification Sections.
  - 2. Execute pre-demonstration requirements in accordance with Section 01 75 00.
  - 3. Perform and report on all tests required by the equipment manufacturer's Operation and Maintenance Manual.
  - 4. Provide testing of electrical equipment and connections in accordance with the Electrical specifications.
  - 5. Equip testing and analysis personnel with all appropriate project related reference material required to perform tests, analyze results, and provide documentation including, but not limited to:
    - a. Contract Drawings and Specifications.
    - b. Related construction change documentation.
    - c. Approved Shop Drawings.
    - d. Approved Operation and Maintenance Manuals.
    - e. Other pertinent information as required.

- B. Equipment Monitoring and Testing Plans:
  - 1. Approved in accordance with Shop Drawing submittal schedule.
  - 2. Included as a minimum:
    - a. Qualifications of firm, field personnel, and analysis personnel doing the Work.
    - b. List and description of testing and analysis equipment to be utilized.
    - c. List of all equipment to be testing, including:
      - 1) Name and tag numbers identified in the Contract Documents.
      - 2) Manufacturer's serial numbers.
      - 3) Other pertinent manufacturer identification,
- C. Instruments Used in Equipment and Connections Quality Control Testing:
  - 1. Minimum calibration frequency:
    - a. Field analog instruments: Not more than 6 months.
    - b. Field digital instruments: Not more than 12 months.
    - c. Laboratory instruments: Not more than 12 months.
    - d. If instrument manufacturer's calibration requirements are more stringent, those requirements shall govern.
  - 2. Carry current calibration status and labels on all testing instruments.
  - 3. See individual testing programs for additional instrumentation compliance requirements.
- D. Testing and Monitoring Program Documentation:
  - 1. Provide reports with tabbed sections for each piece of equipment tested.
  - 2. Include all testing results associated with each piece of equipment under that equipment's tabbed section.
    - a. Include legible copies of all forms used to record field test information.
  - 3. Prior to start of testing, submit one copy of preliminary report format for Engineer review and comment
    - a. Include data gathering and sample test report forms that will be utilized.
  - 4. In the final report, include as a minimum, the following information for all equipment tested:
    - a. Equipment identification, including:
      - 1) Name and tag numbers identified in the Contract Documents.
      - 2) Manufacturer's serial numbers.
      - 3) Other pertinent manufacturer identification,
    - b. Date and time of each test.
    - c. Ambient conditions including temperature, humidity, and precipitation.
    - d. Visual inspection report.
    - e. Description of test and referenced standards, if any, followed while conducting tests.
    - f. Results of initial and all retesting.
    - g. Acceptance criteria.
    - h. "As found" and "as left" conditions.
    - i. Corrective action, if required, taken to meet acceptance.
    - j. Verification of corrective action signed by the Contractor, equipment supplier, and Owner's representative.
    - k. Instrument calibration dates of all instruments used in testing.
  - 5. Provide three (3) bound final reports prior to Project final completion.
- E. Electrical Equipment and Connections Testing Program:
  - 1. Perform testing on Electrical equipment and connections in accordance with the Electrical specification requirements.
  - 2. Testing of motors:
    - a. After installation and prior to energizing the motor, perform inspections and tests per NETA ATS 7.15 for all motors [ ] HP or above.
    - b. Ensure motor has been lubricated.
    - c. Bump motor to check for correct rotation.
  - 3. Repair or replace equipment shown to be out of range of the acceptable tolerance until the equipment meets or exceeds acceptability standards.

- F. Other Testing:
1. Perform tests and inspections not specifically listed but required to assure equipment is safe to energize and operate.
  2. Subbase that supports the equipment base and that is made in the form of a cast iron or steel structure that has supporting beams, legs, and cross members that are cast, welded, or bolted shall be tested for a natural frequency of vibration after equipment is mounted.
    - a. The ratio of the natural frequency of the structure to the frequency of the disturbing force shall not be between 0.5 and 1.5.
- G. Infrared Thermography Testing Program:
1. Perform infrared thermography testing for equipment specified in other Divisions during the Equipment Demonstration Period.
    - a. Perform on all rotating and reciprocating equipment having drivers 25 HP or greater.
    - b. Perform on electrical equipment and connections: See Section 26 08 13.
  2. Additional requirements for infrared thermography monitoring and testing equipment:
    - a. Temperature range: -10 to 350 DEGC.
    - b. Accuracy:  $\pm 2$  PCT or 2 DEGC, whichever is greater.
    - c. Repeatability:  $\pm 1$  PCT or 1 DEGC, whichever is greater.
    - d. Temperature indication resolution: 0.1 DEGC.
    - e. Minimum focus distance: 0.3 meters.
    - f. Output in color palettes: JPEG, BMP, or other digital format compatible with Windows.
  3. Perform inspection per ASTM E1934.
    - a. Operate VFD driven equipment at 100 PCT speed during thermographic inspection.
  4. Acceptability of electrical connections and components based on temperature comparison between components and ambient air temperatures not greater than 10 DEGC per ASTM E1934.
  5. Acceptability of motors and equipment bearings based on temperature rise not greater than 5 DEGC above the equipment and/or bearing manufacturers published criteria.
  6. Repair or replace equipment shown to be out of range of the acceptable tolerance until the equipment meets or exceeds acceptability standards.
- H. Equipment Vibration Monitoring and Testing Program:
1. Perform vibration monitoring and testing for equipment specified in other Divisions during the Equipment Demonstration Period.
  2. Provide vibration testing on all rotating and reciprocating equipment having driver [25] [50] HP and greater [or as shown in the Equipment Vibration Testing Schedule.]
  3. Additional requirements for vibration monitoring and testing equipment at 25 DEGC:
    - a. Requirements for analyzer.
      - 1) Frequency range: 10 Hz to 20 kHz.
      - 2) Frequency Accuracy: 0.02 PCT.
      - 3) Non-integrated spectral amplitude accuracy: 5 PCT, 3 Hz to 65kHz.
      - 4) Single integrated spectral amplitude accuracy: 5 PCT 10 Hz to 20kHz.
      - 5) Supports measurements of acceleration, velocity, displacement, envelope demodulation for bearing defect detection.
      - 6) Capable of two-place computer balancing.
    - b. Requirements for vibration sensor at 25 DEGC:
      - 1) Sensitivity:  $\pm 5$  PCT = 100 mV/g.
      - 2) Acceleration range:  $\pm 50$  g.
      - 3) Amplitude nonlinearity:  $\pm 1$  PCT.
      - 4) Frequency response:  $\pm 10$  Hz to 7 kHz ( $\pm 3$  dB).
      - 5) Permanently attach vibration test and monitoring mounting pads to mechanical equipment at location recommended by the equipment manufacturer or as recommended by the testing firm.
  4. Acceptability of equipment conditions, except pumps, based on ISO 1940-1 Balance Quality Grade G2.5 criteria.

5. Acceptability of pumping equipment to be based on current ANSI/HI criteria:
  - a. ANSI/HI 11.6-2012 for Submersible Pumps in a Wet-pit or Dry-pit configuration.
  - b. ANSI/HI 9.6.4-2009 for all other centrifugal pumps.
6. Repair or replace equipment shown to be out of range of the acceptable tolerance until the equipment meets or exceeds acceptability standards.
7. Utilize an Engineer approved testing agency to perform vibration monitoring and testing on equipment [defined in the schedule at the end of this Section].
8. Permanently attach vibration test and monitoring mounting pads to the equipment at locations recommended by the equipment manufacturer or as recommended by the vibration testing agency.
9. Utilize mounting pads suitable for permanent installation and for incorporation into a predictable maintenance program.
10. For variable speed equipment provide vibration testing at 1 Hz increments of VFD speed throughout entire operating range.
11. Diagnosis to include, but is not limited to the following:
  - a. Unbalance.
  - b. Misalignment.
  - c. Bent shaft.
  - d. Journal bearing related problems.
  - e. Rolling contact bearing problems.
  - f. Mechanical looseness.
  - g. Resonance.
  - h. Foundation flexibility.
  - i. Electrically induced problems.
  - j. Pump problems.
  - k. Fan problems.
  - l. Coupling problems.
  - m. Drive belt problems.
  - n. Gear problems.
  - o. Centrifugal compressor problems.
  - p. Electric motor induced vibration from VFD or VFD carrier frequency.
  - q. Natural frequency of the installed equipment.
12. Provide machinery condition diagnosis based on an acceptable machinery vibration severity guide or machinery fault guide analysis provided by the testing agency, ISO 1940 Balance Quality Grade 6.3 as a minimum.
13. Tolerances for pumping equipment shall be per HI published standards.
14. Repair or replace equipment shown to be out of range of the specified tolerance until the equipment meets the specified normal operation range required in the machinery fault guide analysis.
15. Document testing with written report.
  - a. Report to include initial testing results, acceptance criteria, corrective action taken to meet acceptance, verification of corrective action and acceptance report and baseline.
  - b. Natural frequency of installed equipment utilizing an impact hammer.
  - c. Report to include graphical plots of vibration signature for each test point at a scale which illustrates all vibration levels greater than 0.025 ips RMS.

### **3.7 DEMONSTRATION**

- A. Demonstrate equipment in accordance with Section 01 75 00.

### **3.8 ABBREVIATION TABLE**

- A. As indicated on the Drawings.

## **END OF SECTION**

## **EXHIBIT A**

### **MANUFACTURER FIELD SERVICE REPORT**

This field service report is generic in nature. An electronic copy of this form will be furnished upon request from the Engineer. This report is to reflect that all requirements of the Operations and Maintenance Manual and the individual equipment specification requirements have been performed for the installation and operation and also to provide a baseline for amperage draw for each phase, vibration readings, rotation, alignment and all other applicable tests required to insure that the equipment has been installed properly. A MFSR will be required for each individual piece of equipment requiring a MFSR.

#### **Definitions of Reports:**

Initial service report: Required for construction preparations. Equipment delivered to site is in good condition and conforms to specification requirements. Anchor bolts, hardware and ancillary items (piping, flanges, conduits, fuel/power supply) are compatible with equipment.

Interim service report: Required for equipment installation onto base or foundation. Piping connections, electrical and control connections or structural attachment are complete. For equipment stored on site over four weeks, interim service report will document that manufacturer's long-term storage procedures have been incorporated and equipment has not been damaged, nor coatings deteriorated.

Final service report is to be completed when equipment can be started, electrical amperage and voltage draw measured, cold and hot alignments performed, vibration testing and monitoring performed and the equipment is found to be in compliance with Manufacturer's operating parameters and the requirements of the individual equipment specifications.

**PROJECT:** \_\_\_\_\_

**Report Status:**

Initial Service Report completed and submitted on \_\_\_\_\_

Interim Service Report completed and submitted on \_\_\_\_\_

Final Service Report completed and submitted on \_\_\_\_\_

Commencement of Warranty \_\_\_\_\_

**I Description**

A. Equipment Name and Identification: \_\_\_\_\_

\_\_\_\_\_

B. Serial Number: \_\_\_\_\_

C. Specification Section Number: \_\_\_\_\_

D. Manufacturer: \_\_\_\_\_

E. Representative: \_\_\_\_\_

F. Type of Service: Initial \_\_\_\_\_ Interim \_\_\_\_\_ Final \_\_\_\_\_

**II General Review**

A. The above referenced equipment/material/supplies have been inspected, checked, and adjusted. Yes \_\_\_\_\_ No \_\_\_\_\_

Summary: \_\_\_\_\_

\_\_\_\_\_

B. The above referenced equipment/material/supplies were placed upon properly prepared or suitable substrate. N/A \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_

Summary: \_\_\_\_\_

\_\_\_\_\_

C. The above referenced equipment/material/supplies are free from any undue stress imposed by any connected piping, anchor bolts or any other load. N/A \_\_\_\_\_ Yes \_\_\_\_\_ No \_\_\_\_\_

Summary: \_\_\_\_\_

\_\_\_\_\_

- D. The above referenced equipment/material/supplies have operated under design conditions.  
N/A \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_

Summary: \_\_\_\_\_

- E. The above referenced equipment/material/supplies have been installed in accordance with the manufacturer's recommendations and the Procurement Documents, require no corrective work, and are hereby approved. Yes \_\_\_\_ No \_\_\_\_

Summary: \_\_\_\_\_

- F. The above referenced equipment/material/supplies are acceptable to the manufacturer as installed providing the following corrective action(s) are performed:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

### III Inspection Checklist

Item	Acceptable (Yes/No)	Readings/Comments
Bearings (1)		
Belts (tension reading)		
Lubrication Levels		
Vibration (1) (2) (MILS/SEC)		
Infrared Thermography (1) (2)		
Starting AMPS		
Full Load AMPS		
Volts		
Rotation		
Jacket Temperature (DEGF)		
Seal Water Flow Rate (GPH or GPM)		
Seal Water Pressure (PSI)		
O-rings/Packing		
Alignment (1)		
Anchor Bolts		
Grout		



Item	Acceptable (Yes/No)	Readings/Comments
Substrate Approval		
Sound level (4 FT from unit) (1) (dB)		
Other		

(1) Inspection or testing reports must be attached.

(2) Provide vibration testing and monitoring procedures for Engineer's review and approval prior to testing.

#### IV O&M Manuals

- A. The O&M manual as presented contains all information required for proper operation, maintenance, and instruction of this system. N/A \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_

Summary: \_\_\_\_\_

\_\_\_\_\_

#### V Preventive Maintenance

- A. The preventive maintenance summary outlined in the O&M manual is acceptable for operation of the system throughout the warranty period. N/A \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_

Summary: \_\_\_\_\_

\_\_\_\_\_

#### VI Operator Training/Classroom Instruction

- A. Training and instruction have been performed in accordance with the requirements of the Procurement Documents. N/A \_\_\_\_ Yes \_\_\_\_ No \_\_\_\_

- B. Final Training/Classroom Instruction Completed on: \_\_\_\_\_

Summary: \_\_\_\_\_

\_\_\_\_\_

#### VII Remarks

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **VIII Certification**

I hereby certify, that I, \_\_\_\_\_, am a duly authorized representative of the manufacturer, that I am empowered by the manufacturer to inspect, approve, and operate his equipment, and that I am authorized to make recommendations required to assure that the equipment furnished by the manufacturer is complete and operational, except as modified herein. I also certify that all information contained herein is true and accurate.

By: \_\_\_\_\_  
(Authorized Representative)

For: \_\_\_\_\_

Date: \_\_\_\_\_

## **IX Acknowledgments**

By: \_\_\_\_\_

For: \_\_\_\_\_  
(Contractor)

Date: \_\_\_\_\_

By: \_\_\_\_\_

For: \_\_\_\_\_  
(Engineer)

Date: \_\_\_\_\_

**SECTION 09 96 00**  
**HIGH PERFORMANCE INDUSTRIAL COATINGS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. High performance industrial coatings (HPIC).
  - 2. Any other coating, thinner, accelerator, inhibitor, etc., specified or required as part of a complete System specified in this Specification Section.
  - 3. Minimum surface preparation requirements.
- B. Related Specification Sections include but are not necessarily limited to:
  - 1. Division 00 - Procurement and Contracting Requirements.
  - 2. Division 01 - General Requirements.
  - 3. Section 01 61 03 - Equipment - Basic Requirements.
  - 4. Section 09 91 10 - Architectural Painting.
  - 5. Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC).
  - 6. Division 26 - Electrical.
  - 7. Division 40 - Process Interconnections.
  - 8. Section 40 05 00 - Pipe and Pipe Fittings - Basic Requirements.

**1.2 QUALITY ASSURANCE**

- A. Referenced Standards:
  - 1. ASTM International (ASTM):
    - a. B499, Standard Test Method for Measurement of Coating Thicknesses by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals.
    - b. D3359, Standard Test Methods for Rating Adhesion by Tape Test.
    - c. D4258, Standard Practice for Surface Cleaning Concrete for Coating.
    - d. D4259, Standard Practice for Abrading Concrete.
    - e. D4261, Standard Practice for Surface Cleaning Concrete Masonry Units for Coating.
    - f. D4262, Standard Test Method for pH of Chemically Cleaned or Etched Concrete Surfaces.
    - g. D4263, Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
    - h. D4414, Standard Practice for Measurement of Wet Film Thickness by Notch Gages.
    - i. D4541, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
    - j. D6132, Standard Test Method for Nondestructive Measurement of Dry Film Thickness of Applied Organic Coatings Using an Ultrasonic Gage.
    - k. D6677, Standard Test Method for Evaluating Adhesion by Knife.
    - l. D7091, Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals.
    - m. D7234, Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
    - n. E337, Standard Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet- and Dry-Bulb Temperatures).
    - o. F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
    - p. F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
  - 2. Environmental Protection Agency (EPA).

3. International Concrete Repair Institute (ICRI):
    - a. 310.2, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.
  4. NACE International (NACE).
  5. National Association of Pipe Fabricators (NAPF):
    - a. 500-03, Surface Preparation Standard for Ductile Iron Pipe and Fittings in Exposed Locations Receiving Special External Coatings and/or Special Internal Linings:
      - 1) 500-03-04, Abrasive Blast Cleaning for Ductile Iron Pipe.
      - 2) 500-03-05, Abrasive Blast Cleaning for Cast Ductile Iron Fittings.
  6. NSF International (NSF).
    - a. 61, Drinking Water System Components - Health Effects.
  7. The Society for Protective Coatings (SSPC):
    - a. PA 2, Procedure for Determining Conformance to Dry Coating Thickness Requirements.
    - b. SP 1, Solvent Cleaning.
    - c. SP 2, Hand Tool Cleaning.
    - d. SP 3, Power Tool Cleaning.
    - e. SP 16, Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals.
  8. The Society for Protective Coatings/ NACE International (SSPC/ NACE):
    - a. SP 5/ NACE No. 1, White Metal Blast Cleaning
    - b. SP 6/ NACE No. 3, Commercial Blast Cleaning.
    - c. SP 7/ NACE No. 4, Brush-off Blast Cleaning.
    - d. SP 10/ NACE No. 2, Near-White Blast Cleaning.
    - e. SP 13/ NACE No. 6, Surface Preparation of Concrete.
- B. Qualifications:
1. Coating manufacturer's technical representative shall be a NACE Certified Coatings Inspector, Level 3 minimum.
  2. Applicators shall have minimum of 10 years of experience in application of similar products on similar project.
    - a. Provide references for minimum of three different projects completed in last five years with similar scope of work.
    - b. Include name and address of project, size of project in value (coating) and contact person.
  3. NACE inspector shall be NACE Certified Coatings Inspector Level 3 minimum and shall have minimum of five years of experience of conducting inspections and tests as indicated in this Specification Section.
- C. Miscellaneous:
1. Furnish coating through one manufacturer unless noted otherwise.
- D. Deviation from specified MIL thickness or product type is not allowed without written authorization of Engineer.
- E. Material shall not be thinned unless approved, in writing, by coating manufacturer's technical representative.

### 1.3 DEFINITIONS

- A. Applicator:
1. Applicator is the person actually installing or applying the product in the field, at the Project site, or at an approved shop facility.
- B. Approved Factory Finish: Finish on a product in compliance with the finish specified in the Specification Section where the product is specified or in Specification Section 01 61 03.
- C. Appurtenant Surface: Accessory or auxiliary surface attached to or adjacent to a surface indicated to be coated.

- D. Corrosive Environment:
  - 1. Immersion in or subject to:
    - a. Condensation, spillage or splash of a corrosive material such as water, wastewater or chemical solution.
    - b. Exposure to corrosive caustic or acidic agent, chemicals, chemical fumes, chemical mixture, or solutions.
    - c. For purposes of this Specification Section, corrosive environments include:
      - 1) Exterior areas not otherwise identified as highly corrosive.
      - 2) Piping galleries.
      - 3) Surfaces within 2 FT of high water level.
      - 4) Chemicals storage and feed areas:
        - a) [Edit list as necessary].
- E. Exterior Atmosphere or Surface: Outdoor atmosphere or surface exposed to weather and/or direct sunlight.
- F. Finished Area: A room or area that is listed in or has finish called for on Room Finish Schedule or is indicated on Drawings to be coated.
- G. Holiday:
  - 1. A void, crack, thin spot, foreign inclusion, or contamination in the coating that significantly lowers the dielectric strength of the coating.
  - 2. May also be identified as a discontinuity or pinhole.
- H. HPIC: High performance industrial coatings.
  - 1. Epoxies, urethanes, vinyl ester, waterborne vinyl acrylic emulsions, acrylates, silicones, alkyds, acrylic emulsions and any other coating listed as a HPIC.
- I. Interior Atmosphere or Surface: Indoor atmosphere or surface not exposed to weather and/or direct sunlight.
- J. Immersion Service:
  - 1. Any surface immersed in water or some other liquid.
  - 2. Surface of any pipe, valve, or any other component of the piping system subject to frequent wetting.
  - 3. Surfaces within two feet above high water level in water bearing structures.
- K. Piping System: Pipe, valves, fittings and accessories.
- L. Surface Hidden from View:
  - 1. Within pipe chases.
  - 2. Between top side of ceilings and underside of floor or roof structures above.
- M. Vapor Space: Interior space within tankage, closed structures, or similar elements that is above the low liquid line and subject to the accumulation of fumes, vapor and/or condensation.

#### 1.4 SUBMITTALS

- A. Shop Drawings:
  - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
  - 2. Applicator experience qualifications.
    - a. No submittal information will be reviewed until Engineer has received and approved applicator qualifications.
  - 3. Certification that High Performance Coating Systems proposed for use have been reviewed and approved by a NACE Certified Coatings Inspector employed by the coating manufacturer.
    - a. Submittals not including this certification will be returned without review.
  - 4. Product technical data including:
    - a. Acknowledgement that products submitted meet requirements of standards referenced.
    - b. Manufacturer's surface preparation instructions.

- c. Manufacturer's application instructions.
    - 1) Manufacturer's standard details, including but not limited to penetrations, transitions, and terminations for:
      - a) High-build coatings on concrete.
      - b) Secondary containment coatings.
      - c) [Ultrafiltration] [Membrane] tanks.
      - d) Membrane Bioreactor tanks.
      - e) UV channels.
      - f) Other special conditions as applicable.
  - d. If products being used are manufactured by Company other than listed in the MATERIALS Article of this Specification Section, provide complete individual data sheet comparison of proposed products with specified products including:
    - 1) Application procedure.
    - 2) Coverage rates.
    - 3) Certification that product is designed for intended use and is equal or superior to specified product.
  - e. Contractor's written plan of action for containing airborne particles created by blasting operation and location of disposal of spent contaminated blasting media.
  - f. Coating manufacturer's recommendation on abrasive blasting.
  - g. Coating manufacturer's technical representative's written statement attesting that applicator has been instructed on proper preparation, mixing and application procedures for coatings specified.
  - h. Manufacturer's recommendation for universal barrier coat.
  - i. Manufacturer's recommendation for providing temporary or supplemental heat or dehumidification or other environmental control measures.
- 5. Results of discontinuity testing indicating any corrective action taken.
  - 6. Manufacturer's statement regarding applicator instruction on product use.
- B. Samples:
- 1. Manufacturer's full line of colors for Engineer's preliminary color selection.
  - 2. After preliminary color selection by Engineer provide two, 3 x 5 IN samples of each final color selected.
- C. Informational Submittals:
- 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
  - 2. Approval of application equipment.
  - 3. Applicator's daily records:
    - a. Submit daily records at end of each week in which coating work is performed unless requested otherwise by Engineer's on-site representative.
  - 4. Certification that coating systems requiring holiday detection testing are free of pinholes or other material defects.

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver in original containers, labeled as follows:
- 1. Name or type number of material.
  - 2. Manufacturer's name and item stock number.
  - 3. Contents, by volume, of major constituents.
  - 4. Warning labels.
  - 5. VOC content.
- B. Store materials in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 DEGF.

## 1.6 PROJECT CONDITIONS

- A. Pre-application Conference:

1. Prior to commencement of surface preparation or coating application, the Contractor shall convene a pre-application conference with all affected parties, including but not limited to: the applicator, coating manufacturer's technical representative, Owner's representative, and Engineer's representative(s).
  2. The meeting shall discuss all aspects of the Project including but not limited to:
    - a. Schedule.
    - b. Material storage and handling.
    - c. Examination of surfaces to be coated.
    - d. Protection of surfaces not to be coated.
    - e. Surface preparation.
    - f. Coating application:
      - 1) Environmental conditions for application of coatings.
      - 2) Temporary environmental controls.
    - g. Field quality control requirements:
      - 1) Manufacturer's technical representative responsibilities.
      - 2) Contractor performed testing.
        - a) Instrumentation requirements.
        - b) Frequency of testing.
        - c) Record keeping.
      - 3) NACE inspector performed testing.
- B. Verify that atmosphere in area where coating is to take place is within coating manufacturer's acceptable temperature, humidity and sun exposure limits.
1. Provide temporary heating, shade and/or dehumidification as required to bring area within acceptable limits.
    - a. Provide temporary dehumidification equipment properly sized to maintain humidity levels required by coating manufacturer.
    - b. Provide clean heat with heat exchanger type equipment sufficient in size to maintain temperature on a 24 HR basis.
      - 1) Vent exhaust gases to exterior environment.
      - 2) No exhaust gases shall be allowed to vent into the space being coated or any adjacent space.
  2. Do not apply coatings in snow, rain, fog or mist.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. High Performance Industrial Coatings:
    - a. Carboline Protective Coatings.
    - b. PPG.
    - c. The Sherwin-Williams Company.
    - d. Tnemec.
    - e. AkzoNobel.
- B. Submit request for substitution in accordance with Specification Section 01 25 13.
- C. "Or-Equal" Submittals:
1. Materials by other manufacturers are acceptable provided that they are established as being compatible with and of equal quality to the coatings of the manufacturers listed.
  2. Provide satisfactory documentation from the proposed "or-equal" manufacturer that proposed materials meets or exceeds the following:
    - a. Is of the same generic resin.
    - b. Requires comparable surface preparation.
    - c. Has comparable application requirements.
    - d. Meets the same VOC levels or better.

- e. Provides the same finish and color options.
  - f. Is suitable for the intended service.
  - g. Resistance to abrasion and physical damage.
  - h. Resistance to chemical attack.
  - i. Resistance to UV exposure.
  - j. Ability to recoat in future.
  - k. Dry film thickness per coat.
    - 1) Where manufacturer's product data sheet indicates a minimum MIL thickness per coat that is greater than specified herein, MIL thickness for entire coating system shall be increased proportionately.
  - l. Minimum and Maximum time between coats.
  - m. Compatibility with other coatings.
  - n. Temperature limitations in service and during application.
  - o. Type and quality of recommended undercoats and topcoats.
  - p. Ease of application.
  - q. Ease of repairing damaged areas.
  - r. Stability of colors.
3. The cost of all testing and analyzing of the proposed substitute materials shall be borne by the CONTRACTOR.

## 2.2 MATERIALS

- A. Coatings used for interior finishes shall meet the requirements of the building code [and NFPA 101].
- B. Coatings shall comply with the VOC limits of EPA [and]:
  - 1.
- C. For unspecified materials such as thinner, provide manufacturer's recommended products.
- D. High Performance Industrial Coatings:

COATING CODE	GENERIC DESCRIPTION	MANUFACTURER	
		TNEMEC	SHERWIN WILLIAMS
AAE	Acrylic/Acrylate Emulsion	Series 180 WB Tneme-Crete	Cement Plex 875
AREL	Abrasion-Resistant Epoxy Lining	Series 435 Perma-Glaze	Duraplate 5900
CRM	Cementitious Repair Mortar	Series 217 MortarCrete	Cemtec Silatec MSM
CRU	Corrosion Resistant Urethane	Series 290 CRU	Polyton HP
DFA	Dry-fall Acrylic	Series 115 Uni-Bond DF	DFA Dry Fall Acrylic
EBF	Epoxy Block Filler	Series 1254 Epoxoblock WB	Kem Cati Coat HS
ESF	Epoxy Surfacer/Filler	Series 215 Surfacing Epoxy	Steel Seam FT 910
EMM	Epoxy Modified Cementitious Mortar	Series 218 MortarClad	Duraplate 2300
EF	Epoxy Flooring	Series 237 Power-Tread	GP3746
GFRE	Glass Flake Reinforced Epoxy	Series 142	Sher-Glass FF



COATING CODE	GENERIC DESCRIPTION	MANUFACTURER	
		TNEMEC	SHERWIN WILLIAMS
HREM	H2S-Resistant Epoxy Mortar	Series 434 Perma-Shield H <sub>2</sub> S	Duraplate 5900 Mortar
HU	Hybrid Urethane	Series 740 UVX	Acrolon Ultra
MIO	MIO Polyurethane	Series 1 Omnithane	Corothane 1 MIO
MPE	Multi-Purpose Epoxy	Series N69 Hi-Build Epoxoline II	Macropoxy 646
MTEP	Moisture-Tolerant Epoxy Primer	Series 201 Epoxoprime	Corobond 100
SCE	Secondary Containment Epoxy	Series 237SC Chembloc	Cor Cote HP
SCEP	Secondary Containment Epoxy Primer	Series 206SC Chembloc	GP3552
STEP	Surface-Tolerant Epoxy Primer	Series 135 Chembuild	Macropoxy 646
UHSE	Ultra-High Solids Epoxy (NSF 61)	Series 22 Epoxoline	Duraplate UHS
VEP	Vinyl Ester Primer	Series 251SC Chembloc	Corobond Vinyl Ester Primer
VESC	Vinyl Ester Secondary Containment	Series 252SC Chembloc	Cor Cote VEN FF
ZRU	Zinc-Rich Urethane	Series 94-H <sub>2</sub> O Hydro-Zinc	Corothane 1 Galvapak

E. High Temperature Coatings:

COATING CODE	GENERIC DESCRIPTION	MANUFACTURER		
		PPG	TNEMEC	SHERWIN WILLIAMS
HTZRP	High Temperature Zinc Rich Primer	Dimetcote 9 Series	Series 1505 Endura-Heat ZR	Zinc Clad II Plus

## 2.3 COATING SYSTEMS:

- A. The following tables indicate coating systems by material and environment, unless a specific application is indicated.

Environment/ Application	Surface Preparation	Prime Coat	Intermediate Coats	Finish Coat
<b>Ferrous Metals (Structural &amp; Miscellaneous Metals)</b>				
Interior atmospheric	SSPC-SP 6/ NACE No. 3	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE
Interior atmospheric (corrosive environment)	SSPC-SP 10/ NACE No. 2, min. 2 MIL anchor profile	2.5 to 3.5 MIL ZRU	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE

Environment/ Application	Surface Preparation	Prime Coat	Intermediate Coats	Finish Coat
Immersion - Wastewater	SSPC-SP 10/ NACE No. 2	3.0 to 4.0 MIL MPE		12 to 16 MIL GFRE
Immersion - Wastewater (abrasion resistant)	SSPC-SP 10/ NACE No. 2 min. 3 MIL anchor profile	15 to 20 MIL AREL		15 to 20 MIL AREL
Immersion - non NSF	SSPC-SP 10/ NACE No. 2	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE
Exterior atmospheric	SSPC-SP 6/ NACE No. 3	2.5 to 3.5 MIL ZRU	3.0 to 5.0 MIL MPE	2.5 to 3.5 MIL HU
<b>Galvanized Steel</b>				
Interior atmospheric	SSPC-SP 16	4.0 to 6.0 MIL STEP		2.0 to 3.0 MIL MPE
Immersion - non NSF	SSPC-SP 16	4.0 to 6.0 MIL STEP	2.0 to 3.0 MIL MPE	2.0 to 3.0 MIL MPE
Exterior atmospheric	SSPC-SP 16	4.0 to 6.0 MIL STEP		2.5 to 3.5 MIL HU
Field cut pipe threads	SSPC-SP 3	4.0 to 6.0 MIL STEP	Coat per exposure above	Coat per exposure above
<b>Non Ferrous Metals, including piping</b>				
Dissimilar Materials Protection	SSPC-SP 2	4.5 to 5.5 MIL MPE		
Interior atmospheric	SSPC-SP 2	3.0 to 4.0 MIL MPE		3.0 to 4.0 MIL MPE
Immersion - Wastewater	SSPC-SP 16	3.0 to 4.0 MIL MPE		5.0 to 6.0 MIL MPE
Immersion - Wastewater (abrasion resistant)	SSPC-SP 16			40 to 45 MIL AREL
Immersion - non NSF	SSPC-SP 16	3.0 to 4.0 MIL MPE		5.0 to 6.0 MIL MPE
Exterior atmospheric	SSPC-SP 2	4.0 to 6.0 MIL MPE		2.5 to 3.5 MIL HU
<b>Ferrous Piping</b>				
Interior atmospheric	SSPC-SP 6/ NACE No. 3	2.5 to 3.5 MIL ZRU	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE
Immersion - Wastewater	SSPC-SP 10/ NACE No. 2	3.0 to 4.0 MIL MPE		12 to 16 MIL GFRE
Immersion - Wastewater (abrasion resistant)	SSPC-SP 10/ NACE No. 2, min 3 MIL anchor profile	15 to 20 MIL AREL		15 to 20 MIL AREL

Environment/ Application	Surface Preparation	Prime Coat	Intermediate Coats	Finish Coat
Immersion - non NSF	SSPC-SP 5/ NACE No.1	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE
Exterior atmospheric	SSPC-SP 10/ NACE No. 2	2.5 to 3.5 MIL ZRU	3.0 to 4.0 MIL MPE	2.5 to 3.5 MIL HU
<b>Ductile Iron Piping</b>				
Interior atmospheric	Pipe: NAPF 500-03-04 Fittings: NAPF 500-03-05	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE
Immersion - Wastewater	Pipe: NAPF 500-03-04 Fittings: NAPF 500-03-05	3.0 to 4.0 MIL MPE		12 to 16 MIL GFRE
Immersion - Wastewater (abrasion resistant)	Pipe: NAPF 500-03-04 Fittings: NAPF 500-03-05	15 to 20 MIL AREL		15 to 20 MIL AREL
Immersion - non NSF	Pipe: NAPF 500-03-04 Fittings: NAPF 500-03-05	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE
Exterior atmospheric	Pipe: NAPF 500-03-04 Fittings: NAPF 500-03-05	3.0 to 4.0 MIL MPE	3.0 to 4.0 MIL MPE	2.5 to 3.5 MIL HU

Environment/ Application	Surface Preparation	Filler/Surfacer	Prime Coat	Intermediate Coat(s)	Finish Coat
<b>Concrete*</b>					
Walls, ceilings, and appurtenant surfaces Interior atmospheric	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	ESF and/or EMM as necessary to fill holes and depressions	250 to 300 SQFT/GAL MPE		250 to 300 SQFT/GAL MPE
Interior floors	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	ESF as necessary to fill holes and depressions	175 to 225 SQFT/GAL EF clear	200 to 250 SQFT/GAL EF pigmented	200 to 250 SQFT/GAL EF pigmented
			[broadcast slip-resistant aggregate into wet intermediate coat on walking surfaces]		
Interior Safety Striping	SSPC-SP 13/ NACE No. 6 ICRI CSP 3	ESF and/or EMM as necessary to fill holes and depressions			6.0 to 8.0 MIL EF Pigmented

Environment/ Application	Surface Preparation	Filler/Surfacer	Prime Coat	Intermediate Coat(s)	Finish Coat
Interior - Secondary Containment	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	ESF and/or EMM as necessary to fill holes and depressions	6.0 to 8.0 MIL MTEP	60 to 80 MIL SCEP Fiberglass mat Saturated with 8.0 to 12 MILS SCE	10 to 12 MIL SCE
Immersion - non NSF	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	1/16 to 1/4 IN EMM			16 to 20 MIL UHSE
Immersion - Wastewater (Abrasion Resistant)	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	1/16 to 1/4 IN EMM	1/8 IN HREM		15 to 25 MIL AREL
Exterior atmospheric Corrosive Environment	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	ESF and/or EMM as necessary to fill holes and depressions	150 to 175 SQFT/GAL AAE		150 to 175 SQFT/GAL AAE
Exterior - Secondary Containment	SSPC-SP 13/ NACE No. 6 ICRI CSP 5	ESF and/or EMM as necessary to fill holes and depressions	6.0 to 8.0 MIL MTEP	60 to 80 MIL SCEP Fiberglass mat Saturated with 8.0 to 12 MILS SCE	10 to 12 MIL SCE 20. to 3.0 MIL CRU

\* For repair of deteriorated existing concrete, provide additional surface preparation as specified in PREPARATION article in this Specification Section.

Environment/ Application	Surface Preparation	Filler/Surfacer	Prime Coat	Intermediate Coat(s)	Finish Coat
<b>CMU*</b>					
Interior atmospheric	Refer to PART 3	100 to 150 SQFT/Gal EBF	175 to 200 SQFT/Gal MPE		175 to 200 SQFT/Gal MPE
Exterior atmospheric Corrosive Environment	Refer to PART 3	100 to 150 SQFT/Gal EBF	175 to 200 SQFT/Gal MPE		275 to 300 SQFT/Gal HU
Exterior atmospheric Non-Corrosive Environment	Refer to Specification Section 09 91 10 Architectural Painting				

\* Coverage rates indicated are based on smooth-face normal weight CMU. Provide increased coverage rates in accordance with manufacturer's recommendations for more porous surfaces.

## PART 3 - EXECUTION

### 3.1 ITEMS TO BE COATED

- A. Exterior Surfaces, including but not limited to:
  - 1. Concrete:
    - a. Components of concrete tankage:
      - 1) Walls, columns, beams:
        - a) Coat from 1 FT below low water level to top of component.

- 2) Troughs, launders, weirs.
    - 3) Underside of concrete walkways within [2] FT of high water level.
  - b. Secondary containment enclosures.
  - c. Chemical fill stations.
    - 1) Paving where indicated on Drawings.
    - 2) Spill containment sumps.
  2. Concrete masonry:
    - a. [Edit list as appropriate.]
    - b. Where indicated on Drawings.
  3. Piping, valves, fittings, hydrants and supports:
    - a. As scheduled in Specification Section 40 05 00.
  4. Pumps and motors.
  5. Ferrous metal tankage.
  6. Ferrous metal process equipment.
    - a. Clarifier mechanisms.
    - b. Equipment bridges.
    - c. Gates and operators.
  7. Structural steel:
    - a. Columns, beams and bracing.
    - b. Field welded connections of factory coated structural steel.
  8. Miscellaneous ferrous metal surfaces:
    - a. Items specifically noted on Drawings to be coated.
  9. Miscellaneous galvanized steel surfaces:
    - a. Pipe Bollards.
    - b. Embed Plates.
    - c. Loose lintels.
    - d. Steel components of concrete lintels.
    - e. Items specifically noted on Drawings to be coated.
  10. Appurtenant surfaces attached to or adjacent to a surface indicated to be coated:
    - a. Conduit, boxes, covers and supports.
- B. Interior Areas:
1. Refer to Room Finish Schedule on Drawings.
    - a. If space is scheduled to be coated, coat all appurtenant surfaces within the space unless specifically noted otherwise. Appurtenant surfaces include but are not limited to:
      - 1) Columns.
      - 2) Equipment pads.
      - 3) Equipment supports.
      - 4) Underside of roof or floor decks above:
        - a) Including semi-exposed or concealed from view unless noted otherwise.
      - 5) Conduit, boxes, covers and supports.
      - 6) Miscellaneous ferrous metal surfaces.
  2. Concrete:
    - a. Components of concrete tankage:
      - 1) Walls, columns, beams:
        - a) Coat from 1 FT below low water level to top of component.
      - 2) Troughs, launders, weirs.
      - 3) Underside of concrete walkways within [2] FT of high water level.
    - b. Chemical storage areas:
    - c. Chemical storage areas:
      - 1) Flooring where scheduled or indicated on Drawings.
      - 2) Secondary containment enclosures.
  3. Piping, valves, fittings, hydrants and supports:
    - a. Do not coat piping scheduled to be insulated.
  4. Pumps and motors.
  5. Ferrous metal tankage.

6. Ferrous metal process equipment.
  - a. Clarifier mechanisms.
  - b. Equipment bridges.
  - c. Gates and operators.
  - d. Items specifically noted on Drawings to be coated.
7. Miscellaneous galvanized steel surfaces:
  - a. Pipe Bollards.
  - b. Embed Plates.
  - c. Loose lintels.
  - d. Steel components of concrete lintels.
  - e. Seismic angles at masonry partitions.
  - f. Items specifically noted on Drawings to be coated.
8. Safety Striping:
  - a. Equipment Pads: Coat vertical face and return 3 IN onto horizontal surface of pad.
  - b. Pipe supports, columns, piers and similar vertical elements: [Coat embedded galvanized steel armoring angles] [3 IN each face of corners, up to 48 IN above finished floor].
  - c. As shown on Drawings.

### **3.2 ITEMS NOT TO BE COATED**

- A. General: Do not coat items listed in this Article, unless noted otherwise.
- B. Items with Approved Factory Finish: These items may require repair of damaged coated areas or coating of welded connections.
- C. Electrical Equipment.
- D. Moving parts of mechanical and electrical units where coating would interfere with the operation of the unit.
- E. Code labels, equipment identification or rating plates and similar labels, tagging and identification.
- F. Contact surfaces of friction-type structural connections.
- G. Stainless Steel Surfaces, except:
  1. Dissimilar metals in immersion service.
  2. Piping where specifically noted to be coated.
  3. Banding as required to identify piping.
- H. Aluminum Surfaces, except:
  1. Where specifically shown in the Contract Documents.
  2. Where in contact with concrete.
  3. Where in contact with dissimilar metals.
  4. Appurtenant surfaces as described in the ITEMS TO BE COATED article.
- I. Fiberglass Surfaces, except:
  1. Fiberglass piping where specifically noted to be coated.
  2. Piping supports where specifically noted to be coated.
  3. Appurtenant surfaces as described in the ITEMS TO BE COATED article.
- J. Mechanical piping scheduled to be insulated.
- K. Interior of Pipe, Ductwork, and Conduits.
  1. See Division 23 for ductwork.
  2. See Division 40 for pipe linings.
- L. Galvanized Steel Items, unless specifically noted to be coated.
- M. Architectural Finishes:
  1. Exterior concrete indicated to receive another finish.

2. Precast concrete surfaces, unless specifically indicated to be coated.
3. Prefinished masonry surfaces:
  - a. Pre-colored masonry (exterior face).
    - 1) Interior face shall be coated where scheduled.
  - b. Burnished (ground face) concrete masonry.
  - c. Prefaced masonry.
  - d. Face brick.
  - e. Glass masonry.
4. Plastic laminate.
5. Solid surface material.
6. Standing and running trim.
7. Fiberglass fabrications.
8. Anodized aluminum.
9. PVDF coated metals.
10. Factory finished doors and frames.
11. Aluminum windows, curtainwall and storefront framing systems.
12. Finish hardware.
13. Glass and glazing.
14. Ceramic, porcelain, quarry tile or natural stone.
15. Acoustical materials.
16. Building specialties.
17. Louvers.
18. Casework and countertops.
19. Pipe insulation and jacketing.
20. Standing seam metal roof, fascia, trim, soffit and accessories.

### 3.3 EXAMINATION

#### A. Concrete:

1. Test pH of surface to be coated in accordance with ASTM D4262.
  - a. If surface pH is not within coating manufacturer's required acceptable range, use methods acceptable to coating manufacturer as required to bring pH within acceptable range.
  - b. Retest pH until acceptable results are obtained.
2. Verify that moisture content of surface to be coated is within coating manufacturer's recommended acceptable limits.
  - a. Test surface to be coated in accordance with ASTM D4263 to determine the presence of moisture.
    - 1) If moisture is detected, test moisture content of surface to be coated in accordance with ASTM F1869 or ASTM F2170.
    - 2) Provide remedial measures as necessary to bring moisture content within coating manufacturer's recommended acceptable limits.
    - 3) Retest surface until acceptable results are obtained.

#### B. Concrete Unit Masonry:

1. Test pH of surface to be coated in accordance with ASTM D4262.
  - a. If surface pH is not within coating manufacturer's required acceptable range, use methods acceptable to coating manufacturer as required to bring pH within acceptable limits.
  - b. Retest pH until acceptable results are obtained.
2. Verify that moisture content of surface to be coated is within coating manufacturer's recommended acceptable limits.
  - a. Test surface to be coated in accordance with ASTM D4263 to determine the presence of moisture.
    - 1) If moisture is detected, test moisture content of surface to be coated in accordance with ASTM F1869.

- 2) Provide remedial measures as necessary to bring moisture content within coating manufacturer's recommended acceptable limits.
- 3) Retest surface until acceptable results are obtained.

### 3.4 PREPARATION

#### A. General:

1. Prepare surfaces to be coated in accordance with coating manufacturer's instructions and this Specification Section unless noted otherwise in this Specification Section.
  - a. Where discrepancy between coating manufacturer's instructions and this Specification Section exists, the more stringent surface preparation shall be provided unless approved otherwise, in writing, by the Engineer.
2. Remove all dust, grease, oil, compounds, dirt and other foreign matter which would prevent bonding of coating to surface.
3. Adhere to manufacturer's recoat time surface preparation requirements.
  - a. Surfaces that have exceeded coating manufacturer's published recoat time and/or have exhibited surface chalking shall be prepared prior to additional coating in accordance with manufacturer's published recommendations.
    - 1) Minimum SSPC-SP 7/ NACE No. 4 unless otherwise approved by Engineer.

#### B. Protection:

1. Protect surrounding surfaces not to be coated.
2. Remove and protect hardware, accessories, plates, fixtures, finished work, and similar items; or provide ample in-place protection.
3. Protect code labels, equipment identification or rating plates and similar labels, tagging and identification.

#### C. Prepare and coat before assembly all surfaces which are inaccessible after assembly.

#### D. Ferrous Metal:

1. Prepare ductile iron pipe in accordance with pipe manufacturer's recommendations and NAPP.
  - a. All piping, pumps, valves, fittings and any other component used in the water piping system that requires preparation for coating shall be prepared in accordance with requirements for immersion service.
  - b. Prepare all areas requiring patch coating in accordance with recommendations of manufacturer and NAPP.
  - c. Remove bituminous coating per piping manufacturer, coating manufacturer and NAPP recommendations.
    - 1) The most stringent recommendations shall apply.
2. Complete fabrication, welding or burning before beginning surface preparation.
  - a. Chip or grind off flux, spatter, slag or other laminations left from welding.
  - b. Remove mill scale.
  - c. Grind smooth rough welds and other sharp projections.
3. Solvent clean in accordance with SSPC-SP 1.
4. Restore surface of field welds and adjacent areas to original surface preparation.

#### E. Galvanized Steel and Non-ferrous Metals:

1. Solvent clean in accordance with SSPC-SP 1 followed by brush-off blast clean in accordance with SSPC-SP 16 to remove zinc oxide and other foreign contaminants.
  - a. Provide uniform 1 MIL profile surface.

#### F. Concrete:

1. Cure for minimum of 28 days.
2. Concrete surfaces shall be cleaned in accordance with ASTM D4258.
3. Abrasive blast concrete surfaces in accordance with ASTM D4259 and SSPC-SP 13/ NACE No. 6.
  - a. Provide profile per ICRI 301.2 as listed in MATERIALS article of this Specification Section.



4. Test pH and moisture content in accordance with EXAMINATION article in this Specification Section.
- G. Concrete Masonry:
1. Cure for minimum of 28 days.
  2. Remove all mortar spatters and protrusions.
  3. Clean concrete masonry in accordance with Specification ASTM D4261.
  4. Test pH and moisture content in accordance with EXAMINATION article in this Specification Section.
- H. Preparation by Abrasive Blasting:
1. Schedule the abrasive blasting operation so blasted surfaces will not be wet after blasting and before coating.
  2. Provide compressed air for blasting that is free of water and oil.
    - a. Provide accessible separators and traps.
  3. Protect nameplates, valve stems, rotating equipment, motors and other items that may be damaged from blasting.
  4. All abrasive-blasted ferrous metal surfaces shall be inspected immediately prior to application of coatings.
    - a. Inspection shall be performed to determine cleanliness and profile depth of blasted surfaces and to certify that surface has been prepared in accordance with these Specifications.
  5. Perform additional blasting and cleaning as required to achieve surface preparation required.
    - a. Re-blast surfaces not meeting requirements of these Specifications.
    - b. Prior to coating, re-blast surfaces allowed to set overnight and surfaces that show rust bloom.
    - c. Surfaces allowed to set overnight or surfaces which show rust bloom prior to coating shall be re-inspected prior to coating application.
  6. Profile depth of blasted surface: Not less than 1 MIL or greater than 2 MILS unless required otherwise by coating manufacturer.
  7. Ensure abrasive blasting operation does not result in embedment of abrasive particles in coating.
  8. Confine blast abrasives to area being blasted.
    - a. Provide shields of polyethylene sheeting or other such barriers to confine blast material.
    - b. Plug pipes, holes, or openings before blasting and keep plugged until blast operation is complete and residue is removed.
  9. Abrasive blasting media may be recovered, cleaned and reused providing Contractor submits, for Engineer's review, a comprehensive recovery plan outlining all procedures and equipment proposed in reclamation process.
  10. Properly dispose of blasting material contaminated with debris from blasting operation.
- I. All Plastic Surfaces:
1. Sand using 80-100 grit sandpaper to scarify surfaces.

### 3.5 APPLICATION

- A. General:
1. Thin, mix and apply coatings by brush, roller, or spray in accordance with manufacturer's installation instructions.
    - a. Application equipment must be inspected and approved in writing by coating manufacturer.
  2. Temperature and weather conditions:
    - a. Do not coat surfaces when surface temperature is below 50 DEGF unless product has been formulated specifically for low temperature application and application is approved in writing by Engineer and coating manufacturer's technical representative.
    - b. Avoid coating surfaces exposed to hot sun.
    - c. Do not coat damp surfaces.

- d. Apply coating to concrete or masonry surfaces in descending temperatures, in accordance with coating manufacturer's application instructions.
  3. Apply materials under adequate illumination.
  4. Provide complete coverage to MIL thickness specified.
    - a. Thickness specified is dry MIL thickness.
  5. Evenly spread to provide full, smooth coverage.
    - a. All coating systems are "to cover."
      - 1) In situations of discrepancy between manufacturer's square footage coverage rates and MIL thickness, MIL thickness requirements govern.
    - b. When color or undercoats show through, apply additional coats until coating is of uniform finish and color.
    - c. Finished coating system shall be uniform and without voids, bugholes, holidays, laps, brush marks, roller marks, runs, sags or other imperfections.
  6. If so directed by Engineer, do not apply consecutive coats until Engineer has had an opportunity to observe and approve previous coats.
  7. Work each application of material into corners, crevices, joints, and other difficult to work areas.
  8. Provide coating manufacturer's recommended details at all terminations, penetrations, embedments, cracks, joints and changes in substrate direction.
  9. Avoid degradation and contamination of blasted surfaces and avoid inter-coat contamination.
    - a. Clean contaminated surfaces before applying next coat.
    - b. Intercoat surface cleanliness shall be inspected and approved by the Engineer prior to application of each coat.
  10. Smooth out runs or sags immediately, or remove and recoat entire surface.
  11. Allow preceding coats to dry before recoating.
    - a. Recoat within time limits specified by coating manufacturer.
    - b. If recoat time limits have expired re-prepare surface in accordance with coating manufacturer's printed recommendations.
  12. Allow coated surfaces to cure prior to allowing traffic or other work to proceed.
  13. Coat all aluminum in contact with dissimilar materials.
  14. When coating rough surfaces which cannot be backrolled sufficiently, hand brush coating to work into all recesses provided that the maximum DFT is not exceeded.
  15. Backroll surfaces if coatings are spray applied.
- B. Employ services of coating manufacturer's technical representative to ensure that field-applied coatings are compatible with factory-applied or existing coatings.
1. Certify through material data sheets.
  2. Perform test patch.
    - a. Prepare existing coating surface to receive specified coating system.
    - b. Apply coating to a minimum 1 SQFT area and allow to cure in accordance with manufacturer's recommendations.
    - c. Evaluate adhesion to existing coating:
      - 1) Concrete or Masonry substrates: ASTM D4541.
      - 2) All other substrates: ASTM D6677 and ASTM D3359 (X-cut method).
  3. If field-applied coating is found to be not compatible, require the coating manufacturer's technical representative to recommend, in writing, product to be used as barrier coat, thickness to be applied, surface preparation and method of application.
    - a. Perform test patch as described above.
  4. At Contractor's option, coatings may be removed, surface re-prepared, and new coating applied using appropriate coating system listed in the MATERIALS Article, Coating Systems paragraph of this Specification Section.
    - a. All damage to surface as result of coating removal shall be repaired to original condition or better by Contractor at no additional cost to Owner.

C. Prime Coat Application:

1. Apply structural steel and miscellaneous steel prime coat in the factory.

- a. Finish coats shall be applied in the [field] [factory] [Shop].
  - b. Prime coat referred to here is prime coat as indicated in this Specification.
    - 1) Prime coating applied in factory (shop) as part of Fabricator's standard rust inhibiting and protection coating is not acceptable as replacement for specified prime coating.
  - c. Application of all factory-applied coatings(s) on structural steel and miscellaneous steel [and steel joist] [and steel truss] shall be continually observed and certified by NACE coatings inspector.
- 2. Prime all surfaces indicated to be coated.
    - a. Apply prime coat in accordance with coating manufacturer's written instructions and as written in this Specification Section.
  - 3. Prime ferrous metals embedded in concrete to minimum of 1 IN below exposed surfaces.
  - 4. Apply zinc-rich primers while under continuous agitation.
  - 5. Brush or spray bolts, welds, edges and difficult access areas with primer prior to primer application over entire surface.
  - 6. Touch up damaged primer coats prior to applying finish coats.
    - a. Restore primed surface equal to surface before damage.
  - 7. All surfaces of steel lintels and steel components of concrete lintels used in wall construction shall be completely coated with both prime and finish coats prior to placing in wall.
- D. Finish Coat Application:
- 1. Apply finish coats in accordance with coating manufacturer's written instructions and in accordance with this Specification Section; manufacturer instructions take precedent over these Specifications.
  - 2. Touch up damaged finish coats using same application method and same material specified for finish coat.
    - a. Prepare damaged area in accordance with the PREPARATION Article of this Specification Section.

### **3.6 COLOR CODING**

- A. Color code piping in accordance with the SCHEDULE Article of this Specification Section.

### **3.7 FIELD QUALITY CONTROL**

- A. Application Deficiencies:
- 1. Surfaces showing runs, laps, brush marks, telegraphing of surface imperfections or other defects will not be accepted.
  - 2. Surfaces showing evidence of fading, chalking, blistering, delamination or other defects due to improper surface preparation, environmental controls or application will not be accepted.
    - a. Epoxy surfaces showing evidence of chalking or amine blush shall be prepared and recoated as follows:
      - 1) Solvent clean surfaces in accordance with SSPC-SP1 and abrasive blast in accordance with SSPC-SP7/ NACE No. 4.
      - 2) Recoat with intermediate and finish coats in accordance with coating system specified herein.
- B. Provide protection for coated surfaces.
- 1. Surfaces showing soiling, staining, streaking, chipping, scratches, or other defects will not be accepted.
- C. Contractor Performed Testing:
- 1. Provide ongoing testing and inspection, including but not limited to the following:
    - a. Measurement and recording of environmental conditions as specified herein.
    - b. Measurement and recording of substrate conditions as specified herein.
    - c. Thickness Testing:
      - 1) Wet film thickness during application in accordance with ASTM D4414.
      - 2) Dry Film Thickness (DFT) in accordance with SSPC-PA 2.

- 3) Engineer may measure coating thickness at any time during project to assure conformance with these Specifications.
- d. Bond Strength:
  - 1) [Additional bond] [Bond] strength testing will be required by the [Engineer] [Owner] where there is reason to suspect the integrity of the coating system.
  - 2) Measure bond strength of the coating in accordance with:
    - a) Steel substrate: ASTM D4541.
    - b) Concrete substrate ASTM D7234.
  - 3) The number of test sites and locations to be tested shall be determined by the [Engineer] [Owner] after application of coating. The Contractor will apply the dolies, perform the tests and repair the coating in the presence of the [Engineer] [Owner].
    - a) For each test that fails, two additional tests shall be performed in the adjacent area.
    - b) Further bond tests may be performed to determine the extent of potentially deficient bonded areas at no additional cost to the Owner.
  - 4) Repairs shall be made by applicator in strict accordance with manufacturer's recommendations. Any coated areas that do not pass the bond strength tests shall be removed and replaced at the expense of the Contractor.
- D. NACE inspection:
  1. [The Owner reserves the right to retain a NACE Level 3 coating inspector] [A NACE Level 3 coating inspector will be assigned by the Owner] to perform observation, inspection and testing as deemed necessary to document the quality of the Work.
    - a. All work shall be done to the satisfaction of the Owner's inspector.
    - b. Any portion of the coating that does not satisfactorily pass the inspection and testing requirements shall be repaired or replaced by the Contractor at no additional cost to the Owner.
    - c. Additional testing and/or inspection may be done at the discretion of the Owner.
      - 1) The Contractor will provide all equipment, materials, and labor to perform the testing.
  2. Inspection, testing or observation by the Owner's inspector shall not relieve the Contractor of responsibility for surface preparation, inspection or quality control specified herein.
- E. Instrumentation:
  1. Provide instrumentation as necessary to measure and record atmospheric and substrate conditions, including but not limited to:
    - a. Dry Film Thickness Gauge:
      - 1) Ultrasonic: ASTM D6132.
      - 2) Magnetic: ASTM B499.
    - b. Wet Film Thickness Gauge: ASTM D4414.
    - c. Sling Psychrometer: ASTM E337.
    - d. Surface Temperature Gauge.
    - e. Anemometer.
    - f. Moisture Meter.
    - g. Adhesion test apparatus:
      - 1) Steel: ASTM D4541.
      - 2) Concrete: ASTM D7234.
- F. Maintain Daily Records:
  1. Record the following information during application:
    - a. Date, starting time, end time, and all breaks taken by applicators.
    - b. Air temperature.
    - c. Relative humidity.
    - d. Dew point.
    - e. Moisture content and pH level of concrete or masonry substrates prior to coating.
    - f. Surface temperature of substrate.

- g. Provisions utilized to maintain work area within manufacturer's recommended application parameters including temporary heating, ventilation, cooling, dehumidification and provisions utilized to mitigate wind-blown dust and debris from contaminating the wet coating.
- h. For exterior coating, also record:
  - 1) Sky condition.
  - 2) Wind speed and direction.
- i. Record environmental conditions, substrate moisture content and surface temperature information not less than once every 4 HRS during application.
  - 1) Record hourly when temperatures are below 50 DEGF or above 100 DEGF.
- 2. Record the following information daily for the coating manufacturer's recommended curing period:
  - a. Date and start time of cure period for each item or area.
  - b. For exterior coating, also record:
    - 1) Sky conditions.
    - 2) Wind speed and direction.
    - 3) Air temperature.
      - a) Dry Bulb.
      - b) Wet Bulb.
    - 4) Relative humidity.
    - 5) Dew point.
    - 6) Surface temperatures.
  - c. Record environmental conditions not less than once every 4 HRS.
    - 1) Record hourly when temperatures are below 50 DEGF or above 100 DEGF.
  - d. Provisions utilized to protect each item or area and to maintain areas within manufacturer's recommended curing parameters.
- 3. Format for daily record to be computer generated.

G. Provide wet paint signs.

### **3.8 CLEANING**

- A. Clean coating spattered surfaces.
  - 1. Use care not to damage finished surfaces.
- B. Upon completion of coating, replace hardware, accessories, plates, fixtures, and similar items.
- C. Remove surplus materials, scaffolding, and debris.

### **3.9 COLOR SCHEDULE**

- A. Pipe Bollards: 02SF Safety Yellow.

## **END OF SECTION**



**SECTION 46 73 00**  
**ANAEROBIC DIGESTER EQUIPMENT**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Basic requirements for floating digester cover(s), gas equipment, mixing equipment, and boiler and heat exchanger equipment.
- B. Related Specification Sections include but are not necessarily limited to:
  - 1. Division 00 - Procurement and Contracting Requirements.
  - 2. Division 01 - General Requirements.
  - 3. Section 09 96 00 - High Performance Industrial Coatings.
  - 4. Section 01 61 03 - Equipment - Basic Requirements.
  - 5. Section 46 73 16 - Digester Covers - Floating Gasholder Cover - Shell Type.
  - 6. Section 46 73 17 - Digester Covers - Floating [Gasholder] Cover - Truss Type.
  - 7. Section 46 73 41 - Digester - Boiler and Heat Exchanger.
  - 8. Section 46 73 35 - Digester Gas Equipment.
  - 9. Section 46 73 33 - Digester Mixing System - Eductor Tube Type.

**1.2 QUALITY ASSURANCE**

- A. See Specification Section 01 61 03.
- B. Reference Standards:
  - 1. American Welding Society (AWS):
    - a. D1.1/D1.1M, Structural Welding Code - Steel.
  - 2. National Fire Protection Association (NFPA):
    - a. 54, National Fuel Gas Code.

**1.3 SUBMITTALS**

- A. Shop Drawings:
  - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
  - 2. See Specification Section 01 61 03.
  - 3. Product technical data including:
    - a. Acknowledgement that products submitted meet requirements of standards referenced.
    - b. Manufacturer's installation instructions.
    - c. Equipment weights.
    - d. Electrical and control diagrams.
- B. Contract Closeout Information:
  - 1. Operation and Maintenance Data:
    - a. See Specification Section 01 33 04 for requirements for the mechanics, administration, and the content of Operation and Maintenance Manual submittals.
- C. Informational Submittals:
  - 1. Certifications:
    - a. Manufacturers installation check letter.

**PART 2 - PRODUCTS**

**2.1 DESIGN REQUIREMENTS**

- A. Electric Motor Operated Equipment:
  - 1. Class 1, Division 1 rated.

- B. Materials suitable for exposure to and operation with digester gas having the following approximate volumetric composition:

1. Methane (CH<sub>4</sub>): [68] PCT, ±[ ] PCT.
2. Carbon Dioxide (CO<sub>2</sub>): [30] PCT, ±[ ] PCT.
3. Hydrogen Sulfide (H<sub>2</sub>S): [2] PCT, ±[ ] PCT.
4. Moisture: Saturated.

## **2.2 FABRICATION**

- A. Employ welding procedures and practices which comply with AWS D1.1.

# **PART 3 - EXECUTION**

## **3.1 INSTALLATION**

- A. See Specification Section 01 61 03 and Specification Section 09 96 00 System Purge:
1. Purge all digester gas piping, digester gas safety equipment, digester gas handling equipment, digester gas combustion equipment, digester gas storage equipment and the headspace beneath floating and fixed digester covers.
    - a. Use nitrogen or carbon dioxide gas.
    - b. Conform to NFPA 54, Part 4, Section 4.3.
  2. Provide all materials, inert gas, and labor for purging.
  3. Place into operation or valve off to prevent entrance of air to the system after completion of purging.
- B. Employ welding procedures and practices which comply with AWS D1.1.

## **3.2 FIELD QUALITY CONTROL**

- A. Employ and pay for services of authorized manufacturer's field service representative to:
1. Inspect equipment to be installed by these Specifications.
  2. Supervise adjustments, perform modifications as necessary.
  3. Conduct start-up of equipment and perform operational checks.
  4. Provide Owner with a written statement that manufacturer's equipment has been installed properly, started up, and is ready for operation by Owner's personnel.
  5. Instruct Owner's personnel for the specified minimum period on jobsite on operation and maintenance of following equipment:
    - a. Section 46 73 16 - Digester Cover - Floating [Gasholder] Cover - Shell Type: [ ] HRS.
    - b. Section 46 73 17 - Digester Cover - Floating [Gasholder] Cover - Truss Type: [ ] HRS.
    - c. Section 46 73 41 - Digester - Boiler and Heat Exchanger: [ ] HRS.
    - d. Section 46 73 35 - Digester - Gas Equipment: [ ] HRS.
    - e. Section 46 73 33 - Digester Mixing System - Eductor Tube Type: [ ] HRS.

## **END OF SECTION**



## **SECTION 46 73 16**

### **DIGESTER COVERS - FLOATING GASHOLDER COVER - SHELL TYPE**

#### **PART 1 - GENERAL**

##### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Specifications for shell-type floating digester cover.

##### **1.2 QUALITY ASSURANCE**

- A. Referenced Standards:
  - 1. American Institute of Steel Construction (AISC):
    - a. 325, Manual of Steel Construction.
  - 2. ASTM International (ASTM):
    - a. A36, Standard Specification for Carbon Structural Steel.
  - 3. American Welding Society (AWS):
    - a. A5.1/A5.1M, Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding.
    - b. A5.5/A5.5M, Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding.
    - c. A5.17/A5.17M, Specification for Carbon Steel Electrodes and Fluxes for Submerged Arc Welding.
    - d. A5.18/A5.18M, Specification for Carbon Steel Electrodes and Rods for Gas Shielded Arc Welding.
    - e. A5.20/A5.20M, Specification for Carbon Steel Electrodes for Flux Cored Arc Welding.
    - f. A5.23/A5.23M, Specification for Low-Alloy Steel Electrodes and Fluxes for Submerged Arc Welding.
- B. Qualifications:
  - 1. Manufacturer shall have a minimum of 20 units of 30 FT or greater diameter floating gasholder shell type covers in service for at least five years.

##### **1.3 DEFINITIONS**

- A. Effective Gas Storage Volume: Volume available within the floating gasholder cover for gas storage measured from the top of the ballast ring to 1 FT below the top of the skirt.
- B. Roof Plate: The exterior plate of the floating cover.

##### **1.4 SUBMITTALS**

- A. Shop Drawings:
  - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
  - 2. See Specification Section 46 73 00.
  - 3. Documentation of qualifications including Owner contact name and telephone number.
  - 4. Design calculations prepared and stamped by a State of Nevada professional civil or structural Engineer showing relationship between weight, gas pressure and overpressure.
    - a. Roof plate shall not be considered as structural member.
  - 5. Full details of interconnecting gas piping with cover in high, intermediate and low positions.
  - 6. Ballast and counterbalance weights, locations, and method of anchorage.
  - 7. Verification that loading per corbel with design loads as specified in PART 2 of this Specification Section and with 2 IN of vacuum action on the cover does not exceed loading shown on the Drawings.
- B. Operation and Maintenance Manuals.
  - 1. See Specification Section 01 33 04 for requirements for:

- a. The mechanics and administration of the submittal process.
  - b. The content of Operation and Maintenance Manuals.
- C. Informational Submittals:
  - 1. Cover leakage test report.
  - 2. Cover travel test report.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
  - 1. Covers:
    - a. Olympus technologies, Inc. (OTI).
    - b. Walker Process.
    - c. Eimco.
  - 2. Combination pressure-vacuum relief valves:
    - a. Varec.
    - b. PFT.
- B. Submit request for substitution in accordance with Specification Section 01 25 13.

### **2.2 MATERIALS**

- A. Cover:
  - 1. Roof plates: Steel, ASTM A36.
  - 2. Channels and structural support elements: Steel, ASTM A36.
  - 3. Rim plates: Steel, ASTM A36.
  - 4. Bolts and nuts: 316 stainless steel.
  - 5. Welding electrodes:
    - a. Shielded metal-arc: AWS A5.1/A5.1M or AWS A5.5/A5.5M, E70XX.
    - b. Submerged-arc: AWS A5.17/A5.17M or AWS A5.23/A5.23M, F7X-EXXX.
    - c. Gas metal-arc: AWS A5.18/A5.18M, E70S-X or E70U-1.
    - d. Flux cored-arc: AWS A5.20/A5.20M, E70T-X (except 2, 3, 10, GS).

### **2.3 EQUIPMENT**

- A. Performance and Design Requirements:
  - 1. Floating gasholder cover:
    - a. Tank inside diameter: 45 FT.
    - b. Side wall:
      - 1) Total: 8 FT.
      - 2) Operating liquid depth:
        - a) Maximum: [ ] FT.
        - b) Average: [ ] FT.
        - c) Minimum: [ ] FT.
    - c. Minimum effective gas storage volume at average operating liquid depth: [ ] CUFT.
    - d. Minimum freeboard (liquid level below the top of the skirt) at zero gas pressure in gas dome and cover in lowest position: [6] IN.
    - e. Minimum pressure increase provided by submerged concrete ballast ring, inches of water column: [2] IN.
    - f. Minimum ballast ring submergence at internal test pressure: 6 IN.
    - g. Normal internal operating pressure, inches of water column: 8 IN.
    - h. Internal test pressure, inches water column: 12 IN.
    - i. Pressure relief valve setting, inches water column: 9 IN.
    - j. Vacuum relief setting, inches water column: [2] IN.
  - 2. Typical digester gas characteristics and composition: See Specification Section 46 73 00.

3. Design loading conditions:
  - a. Dead load:
    - 1) As calculated.
    - 2) Include insulation reference where appropriate.
  - b. Live and vacuum load: 50 LBS per square foot.
  - c. Wind load on projected area: 25 LBS per square foot.
4. Environmental conditions:
  - a. Equipment will be subject to normal weather extremes of the United States, located outdoors, exposed to ambient temperatures, precipitation, and direct sunlight.
  - b. Sludge characteristics:
    - 1) Mixture of raw primary and thickened waste biological sludge.
    - 2) Solids concentration: 2 PCT to 8 PCT; nominal 4 PCT.
    - 3) Digester sludge temperature: 95 DEGF.
    - 4) pH 5 to 8.
  - c. Cover will be subject to wind and snow loadings.
  - d. The wastewater sludges are from municipal wastewater treatment plant operations, but may contain small amounts of industrial waste constituents.

## 2.4 ACCESSORIES

- A. See Specification Section 01 61 03.
- B. Vertical Guides and Appurtenances:
  1. The gasholder over shall be provided with 5 vertical guides.
  2. The guide system shall consist of vertical structural galvanized steel guide assemblies designed for installation on separate tank wall mounting plates which are designed to anchor to the inside face of the concrete tank wall. Anchor mounting plates with epoxy and stainless steel anchorage.
  3. The tank wall mounting plate shall be designed to provide adequate adjustment, in and out, for the guide to achieve an exact fit with the vertical slide mounted to the cover. Vertical guides shall not be mounted directly to the tank wall.
  4. Vertical guides shall include non-corrosive high density plastic (UHMW) wearing surfaces. Plastic components exposed to direct sunlight shall be provided with UV inhibitors.
  5. The guide system shall include 304 stainless steel closed HSS section slide members attached to the gasholder cover and designed to slide within the wall mounted guide assembly. The slide member shall extend the entire side skirt length to develop uniform resistance against unbalanced loadings. The design shall include adjustment capability of the slide, during installation, to insure proper and exact fit with the vertical guide.
  6. The guide system shall require no routine maintenance or lubrication.
  7. The plastic wear surfaces shall be designed to be replaceable while the digester is in operation. Designs which require the digester to be drained, the liquid level to be changed from normal operation, or the digester to be de-pressurized to replace the plastic wear surfaces shall not be considered.
  8. Provide for uniform vertical travel of the cover from the low position with the cover resting on the corbels to the highest position at maximum gas storage and maximum liquid level.
  9. The guides shall prevent the gasholder from rotating and from potential imbalance caused from wind, snow, or point loads throughout the entire cover travel range.
  10. The guides shall be designed to allow the installing Contractor to mount them after the cover is installed in the tank to insure proper guide to slide alignment.
- C. Gas Collection Dome:
  1. Locate as shown on Drawings.
  2. Equip with following:
    - a. Bolt on cover.
    - b. Gas take-off housing or pipe connection.
    - c. Pressure/vacuum relief valve connection.

- D. Combination Pressure-Vacuum Relief Valve:
  - 1. Weighted diaphragm type.
  - 2. Pressure relief weights for adjustment in increments of 1/4 IN water column, eight weights total.
  - 3. Include flame arrester.
  - 4. 3 IN minimum nominal opening.
- E. Flexible Hose:
  - 1. U.S. Rubber Co., Style CH 6050.
    - a. Standard weight.
    - b. Buna-N liner.
    - c. Neoprene exterior.
- F. Manways:
  - 1. Gastight.
  - 2. Digester access: 48 IN DIA.
  - 3. Number and location as shown on Drawings.
- G. Sampling Wells:
  - 1. Number and location as shown on Drawings.
  - 2. Size: 8 IN DIA, extend to below liquid level.
  - 3. Gastight.
  - 4. Quick opening design.

## 2.5 FABRICATION

- A. 1/4 IN minimum thickness for steel plate.
- B. Structural steel designed to be self-supporting when resting on corbels with tank under 2 IN vacuum condition and specified design live and dead loads.
- C. Assure maximum allowable stresses do not exceed limiting stress in AISC.
- D. Weld in accordance with AWS standards.
  - 1. Welders: Qualified and certified in accordance with AWS requirements.
  - 2. Utilize full penetration welds on abutting plates and members.
  - 3. Utilize two-sided, continuous fillet welds on plates and members that overlap.
  - 4. All shop and field welding to be shielded arc welding and conform to standards of AWS.
- E. Provide the following minimum number of radial beams: 6.
- F. Fabricate with the following minimum number of top and bottom rollers and top roller guides:
  - 1. Shell design: 5.
- G. Utilize ballast ring on bottom of rim plate.
  - 1. Attach on integral steel trough.
  - 2. Rigidly anchor ballast to prevent movement.
  - 3. Distribute for maximum cover stability.
  - 4. Design to provide 6 IN water seal when cover relief pressure is reached.

## PART 3 - EXECUTION

### 3.1 ERECTION

- A. See Specification Section 01 61 03 and Specification Section 46 73 00.
- B. Painting:
  - 1. See Specification Section 09 96 00.
  - 2. Test cover before field paint applied.
  - 3. Walking surface:
    - a. Form over entire cover surface.
    - b. Form by spreading coarse sand on last coat of paint.

- c. Remove excess sand after paint has dried.
    - 1) Do not allow sand to fall into tankage.
- C. Connect all gas piping to cover.
- D. Weld in accordance with AWS Standards.

### **3.2 FIELD QUALITY CONTROL**

- A. Cover Air Leakage Test:
  - 1. Fill tank with plant effluent or water and trap air beneath the [ceiling] [roof] plates.
  - 2. Pressurize attic space to 6 IN water column.
  - 3. Check welded seams for leaks using soapsuds solution.
  - 4. Reweld leaking areas and retest until no leaks are found.
  - 5. Manufacturer's factory representative shall be present to document test results.
- B. See Specification Section 46 73 00 for manufacturer's field service requirements.

### **3.3 DEMONSTRATION**

- A. See Specification Section 01 75 00.
- B. Prestart-up Requirements:
  - 1. Raise and lower each cover over its entire length of travel using a combination of air pressure and plant effluent.
  - 2. Adjust all pressure and vacuum regulation devices to their proper setting and demonstrate by operation.
  - 3. Verify and adjust, if necessary, waste gas burner and digester gas pressure and gas relief valves to meet the pressures specified.
  - 4. Verify cover balance and adjust such that cover remains level 1/2 IN throughout the entire operating range.

**END OF SECTION**

