

**PROJECT MANUAL**

**Water Treatment Plant  
Chlorination System Improvements  
for  
City of Lake Worth  
Project No. WT 1609  
IFB #16-127**

September 2016

*Prepared by:*

Mock, Roos & Associates, Inc.  
Engineers-Surveyors-Planners  
5720 Corporate Way  
West Palm Beach, Florida

Engineer's Project  
No. B5038.00

PROJECT: Water Treatment Plant Chlorination System  
 Improvements for City of Lake Worth  
 Project No. WT 1609  
 IFB #16-127

**TABLE OF CONTENTS**

	<u>NO. OF PAGES</u>
<u>DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS</u>	
00020 INVITATION TO BID .....	1
00100 INSTRUCTIONS TO BIDDERS .....	8
00300 BID FORM .....	11
00310 BIDDERS QUALIFICATION .....	3
00500 AGREEMENT .....	10
00501 OPINION OF ATTORNEY .....	1
00610 CONSTRUCTION PERFORMANCE BOND .....	2
00620 CONSTRUCTION PAYMENT BOND .....	2
00630 NOTICE OF COMPLIANCE WITH CHAPTER 556, FLORIDA STATUTES.....	1
00670 CONTRACTOR'S AFFIDAVIT TO OWNER .....	1
00680 APPLICATION FOR PAYMENT .....	1
00681 SCHEDULE OF VALUES AND WORK COMPLETED .....	1
00700 GENERAL CONDITIONS .....	65
00800 SUPPLEMENTARY CONDITIONS .....	6
00820 SPECIAL CONDITIONS PURCHASING DEPARTMENT REQUIREMENTS .....	3
00840 LIST OF THE DUTIES, RESPOSIBILITIES A LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE.....	3
00860 LIST OF DRAWINGS .....	1
00900 ADDENDA (ADDED THIS LOCATION IN PROJECT MANUAL - IF ANY)	
SPECIFICATIONS TABLE OF CONTENTS .....	1
DIVISION 1 - GENERAL REQUIREMENTS .....	4
TECHNICAL SECTIONS OF SPECIFICATIONS .....	55
APPENDICES	
APPENDIX A – PALM BEACH COUNTY HEALTH DEPARTMENT PERMIT .....	12

PROJECT: Water Treatment Plant Chlorination System  
Improvements for City of Lake Worth  
Project No. WT 1609  
IFB #16-127

Date: September 22, 2016

**00020**  
**INVITATION TO BID**

Sealed bids, in duplicate, will be received by City of Lake Worth Procurement Office, City Hall, 2<sup>nd</sup> Floor, 7 North Dixie Highway, Lake Worth, Florida 33460 for the subject Project until October 26, 2016, 3:00 p.m. local time, then opened publicly at that time.

The OWNER for the Project is City of Lake Worth, Florida.

The Contract Documents will be open to inspection at Mock, Roos & Associates, Inc., 5720 Corporate Way, West Palm Beach, Florida 33407 or in electronic form on the City of Lake Worth website: [www.lakeworth.org/business/bids](http://www.lakeworth.org/business/bids). All questions are to be submitted in writing to Mock•Roos, or email to: [john.leemon@mockroos.com](mailto:john.leemon@mockroos.com). The last day to submit questions is five business days before bids are due.

Contract Documents may be obtained in electronic form from Demand Star. Any bid received must be plan holders of record with Demand Star. Any bid received from a bidder that is not a plan holder of record will be returned unopened.

A non-mandatory prebid meeting will be held at 10:00 a.m. on October 13, 2016 at the Water Treatment Plant. Although the meeting is not mandatory, all prospective bidders are encouraged to attend.

This Contract is a unit price contract.

Bids must be accompanied by a Bid Security in the form of a certified or bank check made payable to the Owner, or a Bid Bond. The amount of the security shall not be less than five (5) percent of the Bidder's total price indicated in Bid Form.

No Bid may be withdrawn for a period of 120 days after the scheduled closing date for the receipt of bids except as otherwise provided in Article 13 of the Instructions to Bidders.

The successful Bidder, who is awarded the Contract, shall be required to furnish a 100% Construction Performance Bond and a 100% Construction Payment Bond.

The OWNER reserves the right to reject any or all Bids, to waive informalities, and to re-advertise.

/s/ Corinne Elliott, Assistant Finance Director

Publish: Palm Beach Post - September 25, 2016

00100  
INSTRUCTIONS TO BIDDERS

**1. DEFINED TERMS.**

Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract (EDCJC C-700, 2013 Edition) have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

**2. COPIES OF BIDDING DOCUMENTS.**

2.1. Complete sets of the Bidding Documents in the number and for the cost, if any, stated in the Advertisement or Invitation to Bid may be obtained from Owner (unless another issuing office is designated in the Advertisement or Invitation to Bid).

2.2. Complete sets of Bidding Documents must be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3. Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

**3. QUALIFICATIONS OF BIDDERS.**

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days of Owner's request, written evidence such as financial data, previous experience, present commitments and other such data as may be reasonably specifically requested by Owner or otherwise required in Contract Documents. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located.

**4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE.**

4.1. It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work, (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.

4.2. Reference is made to Division 1: General Requirements of the Specifications for the identification of:

4.2.1. those reports of explorations and tests of subsurface conditions at the site which have been utilized by Engineer in preparation of the Contract Documents.

4.2.2. those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Facilities) which are at or contiguous to the site which have been utilized by Engineer in preparation of the Contract Documents.

4.2.3. Copies of such reports and drawings (referred to above), if not attached to the Specifications or added on the Drawings, will be made available by Owner to any Bidder on request. Those reports and drawings are not a part of the Contract Documents. Bidder may not rely upon the accuracy of the non-technical data, interpretations or opinions contained in those reports and drawings. Bidder may not rely on the completeness of those reports and drawings for the purposes of bidding or

construction. Bidder may rely on any technical data contained in those reports and drawings specifically referenced in Division 1: General Requirements as technical data that can be relied on.

4.3. Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

4.4. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in Contract Documents due to differing conditions appear in Paragraphs 5.03 and 5.05 of the General Conditions.

4.5. Before submitting a Bid, each Bidder will, at Bidder's own expense, be responsible to make or obtain such examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

4.6. On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.

4.7. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents.

4.8. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **5. INTERPRETATIONS AND ADDENDA.**

5.1. All questions about the meaning or intent of the Contract Documents are to be directed to Engineer (unless another issuing office is designated in the Advertisement or Invitation to Bid). Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by issuing office as having received the Bidding Documents. Questions received less than five days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

5.2. Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

## **6. BID SECURITY.**

6.1. Each Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions.

6.2. The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon the Bid security will be returned. If

the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within fifteen days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of the Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the 120th day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within seven days after the Bid opening.

## **7. CONTRACT TIME.**

The numbers of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Bid Form and the Agreement. If Contract Times are left blank in the Bid Form, the time for Substantial Completion and final completion are to be set forth by Bidder in the Bid and will be included in the Agreement. The times will be taken into consideration by Owner during the evaluation of Bids, and it will be necessary for the Successful Bidder to satisfy Owner of Bidder's ability to achieve Substantial Completion and final completion within the times designated in the Bid.

## **8. LIQUIDATED DAMAGES.**

Provisions for liquidated damages, if any, are set forth in the Agreement.

## **9. SUBSTITUTE OR "OR-EQUAL" ITEMS.**

The contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Contractor and consideration by Engineer is set forth in Article 7 of the General Conditions and may be supplemented in Division 1: General Requirements.

## **10. SUBCONTRACTORS, SUPPLIERS AND OTHERS.**

10.1. If the Bid Form or Specifications require (or if Owner requests after Bids are received) the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to Owner in advance of the specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within seven days after the Bid opening (or seven days after request by Owner) submit to Owner a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization if requested by Owner. Subcontractors shall be required to meet Contractor's liability insurance requirements as established by the General and Supplementary Conditions or be listed as an additional insured on the apparent successful Bidder's policy. If Owner or Engineer after due investigation has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, either may before the Notice of Award is given request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price. If apparent Successful Bidder declines to make any such substitution, Owner may award the contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person or organization listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in the General Conditions.

10.2. No Contractor shall be required to employ any Subcontractor, Supplier, other person or organization against whom Contractor has reasonable objection.

## **11. BID FORM.**

- 11.1. The Bid Form is included with the Bidding Documents; additional copies may be obtained from Engineer (or the issuing office).
- 11.2. All blanks on the Bid Form must be completed in ink or by typewriter.
- 11.3. Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.
- 11.4. Bids by partnerships must be executed in the partnership name and signed by a general partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 11.5. All names must be typed or printed below the signature.
- 11.6. The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form). All Addenda are a part of the Bid documents and each Bidder will be bound by such Addenda, whether or not received by the Bidder. It is the responsibility of each Bidder to verify that he or she has received all Addenda issued before Bids are opened.
- 11.7. The address and telephone number for communications regarding the Bid must be shown.

## **12. SUBMISSION OF BIDS.**

Bids shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope, marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted) and name and address of the Bidder and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED FOR (insert project name) TO BE OPENED (insert date and time as indicated in the Invitation to Bid or subsequent addenda)" on the face of it.

## **13. MODIFICATION AND WITHDRAWAL OF BIDS.**

- 13.1. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- 13.2. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

## **14. OPENING OF BIDS.**

Bids will be opened (publicly or privately) as indicated in the Invitation to Bid.

- 14.1. When Bids are opened publicly they will be read aloud, and the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids. If applicable, the bid will be opened in accordance with sec. 255.0518, Florida Statutes.
- 14.2. When Bids are opened privately, an abstract of the same information (will or will not) be made available to Bidders within seven days after the date of Bid opening.

## **15. BIDS TO REMAIN SUBJECT TO ACCEPTANCE.**

All bids will remain subject to acceptance for 120 days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

## **16. AWARD OF CONTRACT.**

16.1. Owner reserves the right to reject any and all Bids, to waive any and all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive, unbalanced or conditional Bids. Also, Owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make and award to the Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

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

16.3. Owner may consider the qualifications and experience of Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions (or as requested by Owner after the Bids are received). Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

16.4. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

16.5. If the contract is to be awarded, it will be awarded to the lowest, responsive and responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project and subject to the Owners Local Preference Policy. No bid shall be accepted from, nor will any Contract be awarded to any Bidder who is in arrears to the Owner upon any debt or Contract or who is a defaulter as surety or otherwise upon any obligation to the Owner or who has failed to perform faithfully any previous Contract with the Owner or other party as determined by the Owner.

16.6. If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within 120 days after the day of the Bid opening.

16.7. When Bidder is permitted to designate the Contract Time, Bid prices will be compared after adjusting for differences in the time designated in the Bid for Substantial Completion.

## **17. CONTRACT SECURITY.**

Paragraph 6.01 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by the required performance and payment Bonds.

## **18. SIGNING OF AGREEMENT.**

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 15 days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds. In the event the successful Bidder fails to execute the Contract and return same to the Owner within the stipulated fifteen (15) days, the Owner may disqualify the Bid, and said Bidder shall not be permitted to contest to the contrary and does waive such right upon submitting a Bid.

## **19. DISQUALIFICATION OF BIDDER**

19.1 Bidder may be disqualified and its Bid rejected for any of the following:

- a) Bidder does not meet the Competency of Bidder and Reference requirements set forth herein.
- b) Reason to believe that collusion exists among or between Bidders
- c) Unbalanced Bid; that is, Bid in which the prices bid for some items are out of all proportion to those Bids of others.
- d) Bidder's uncompleted workload, which in the judgment of the Owner, may cause detrimental impact or impair the prompt completion of this Contract.
- e) Lack of responsibility on the part of Bidder, (for example, no Bidder would be considered responsible who had failed to carry out any Contract in which the Owner had been directly or indirectly concerned), or to which Bidder failed to perform on other projects.
- f) A determination by Owner of the Contractor's lack of experience or lack of competency as may be revealed by qualification statements, financial statements, experience records, references, or other questionnaires.
- g) Substantial evidence of bad character or dishonesty.
- h) Bidder is involved in any current litigation with Owner.
- i) Bidder has defaulted on any contract or is in arrears on any contract.

## **20. LICENSES, PERMITS, AND CERTIFICATION**

20.1 When applicable, vendor must hold a Certificate of Competency issued by the State of Florida or the Palm Beach County Construction Industry Licensing.

20.2 A business tax receipt obtained from the Owner shall be required of any person maintaining a permanent business location or branch office within the City of Lake Worth.

20.3 A copy of any licenses and permits shall be submitted with the Bid and must be in the name of the vendor shown on the Bid submittal.

## **21. PREPARATION EXPENSE**

21.1 Neither the Owner nor its representatives will be liable for any expenses incurred in connection with the preparation, presentation or submittal of any Bid.

## **22. NON-COLLUSION**

22.1 Bidder certifies that this Bid is made without prior understanding, agreement, or connection with any individual, firm, partnership, corporation or other entity submitting a Bid for the same materials, services, supplies, or equipment and is in all respects fair and without collusion or fraud. No premiums, rebates, or gratuities are permitted with, prior to, or after any delivery of material or

provisions of services. Any violation of this provision may result in Contract cancellation, return of materials or discontinuation of services, and the possible removal of Bidder from the vendor Bid list(s).

## **23. CODE OF ETHICS**

23.1 If any Bidder violates or is a party to a violation of the Code of Ethics of the Owner, Palm Beach County, and/or of the State of Florida with respect to this Bid, such Bidder may be disqualified from performing the work described in this Bid or from furnishing the goods or services for which this Bid is submitted and may be further disqualified from bidding on any future Bids for work or for goods or services for the Owner.

## **24. CONFLICT OF INTEREST**

24.1 The award is subject to any and all applicable conflict of interest provisions found in the policies or Code of Ordinances of the City, the Palm Beach County Code of Ethics, and found in the Florida Statutes. All Bidders must complete the Conflict of Interest Form attached hereto.

## **25. DRUG FREE WORKPLACE PROGRAMS**

25.1 Preference may be given to businesses with Drug-Free Work Place Programs. Whenever two or more Bids which are equal with respect to price, quality, and service are received by the Owner for the procurement of commodities or contractual services, a Bid received from a business that completes the attached DFW form certifying that it is a DFW may be given preference in the award process.

## **26. LEGAL REQUIREMENTS**

26.1 Federal, State, County and Owner laws, ordinances, rules, codes, guidelines, directives and regulations that in any manner affect the items covered herein apply. Lack of knowledge by the Bidder shall in no way be a cause for relief from responsibility.

## **27. COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ACT**

27.1 The Bidder certifies that all equipment and materials contained in this Bid shall meet all O.S.H.A. requirements. Bidder further certifies that, if it is the successful Bidder and the equipment and/or materials delivered are subsequently found to be deficient in any O.S.H.A. requirements in effect on the date of delivery, all costs necessary to bring the equipment and/or materials into compliance with the aforementioned requirements shall be borne by the Bidder.

## **28. NON-APPROPRIATIONS**

28.1 The obligations of the Owner to make a Bid award and sign an agreement under the terms of this "Invitation to Bid" are contingent upon funds lawfully appropriated for this purpose. Should funds not be appropriated for this purpose, the Owner, at its sole discretion, shall have the right to reject all Bids.

## **29. FLORIDA PUBLIC RECORDS ACT AND CONTRACT CONTENT OWNERSHIP**

29.1 All material submitted regarding this Bid becomes the property of the Owner. Pursuant to sec. 119.07(1), Fla. Stat., sealed Bids received by the Owner pursuant to a competitive solicitation are subject to disclosure when the Owner provides notice of an intended decision or until thirty (30) after opening of the Bids, whichever is earlier. If the Owner rejects all bids submitted in response to a competitive solicitation and the Owner concurrently provides notice of its intent to reissue the competitive solicitation, the rejected bids remain exempt from sec. 119.07(1), Fla. Stat., until such time as the Owner provides notice of an intended decision concerning the reissued competitive solicitation or until the Owner withdraws the reissued competitive solicitation. A Bid is not exempt from disclosure for longer than 12 months after the initial notice rejecting all Bids made by the Owner. Bidder should take special note of this as it relates to any proprietary information that might

be included in their offer. Any resulting contract may be reviewed by any person after the contract has been executed by the Owner. The Owner has the right to use any or all information/material submitted in response to this bid and/or any resulting contract from the same. Disqualification of a Bidder does not eliminate this right.

29.2 Contractor shall comply with Florida's Public Records Laws, and, if applicable, specifically agrees to:

- a) Keep and maintain public records that ordinarily and necessarily would be required by the Owner in order to perform the service.
- b) Provide the public with access to public records on the same terms and conditions that the Owner would provide the records and at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.
- c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law.
- d) Meet all requirements for retaining public records and transfer, at no cost, to the Owner all public records in possession of the Contractor upon termination of the Contract Documents and destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. All records stored electronically must be provided to the Owner in a format that is compatible with the information technology systems of the Owner.

END OF SECTION

**BID FORM MUST BE SUBMITTED IN DUPLICATE**

BIDDER: \_\_\_\_\_

PROJECT: Water Treatment Plant Chlorination System  
Improvements for City of Lake Worth  
Project No. WT 1609 – IFB #16-127

DATE: \_\_\_\_\_  
(Bid Submitted on)

**00300  
BID FORM**

THIS BID IS SUBMITTED TO:

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for \_\_\_\_\_ days after the day of Bid opening. BIDDER will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within \_\_\_\_\_ days after the date of OWNER's Notice of Award.

3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

(a) BIDDER has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number
------	--------

(b) BIDDER has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

(c) BIDDER has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Division 1: General Requirements as provided in paragraph 5.03 of the Supplementary Conditions, and accepts the determination set forth in Division 1: General Conditions of the extent of the technical data contained in such reports and drawings upon which BIDDER is entitled to rely.

(d) BIDDER has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in (c) above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 5.03 of the General Conditions, as amended by the Supplementary Conditions; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by BIDDER for such purposes.

- (e) BIDDER has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by BIDDER in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 5.05 of the General Conditions.
- (f) BIDDER has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- (g) BIDDER has given ENGINEER written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER.
- (h) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

4. BIDDER agrees to perform all the Work described in Contract Documents, subject to adjustments as provided therein, for the Prices BIDDER provides on the Unit Price Schedule (Page 00300-5):

5. BIDDER declares it understands that the unit quantities shown on the Bid Form Unit Price Schedule are approximate only and not guaranteed and are subject to either increase or decrease; and that should the quantities of any of the items of Work be increased, the BIDDER agrees to do the additional Work at the unit prices set out herein, and should the quantities be decreased, BIDDER also understands that final payment shall be made on actual quantities completed at the unit prices, and shall make no claims for anticipated profits for any decrease in the quantities.

6. The BIDDER further declares it understands the OWNER may elect to construct only a portion of the Work covered by these Documents and BIDDER agrees to perform that portion of the Work for which BIDDER is awarded a Contract at the unit prices quoted herein.

7. BIDDER agrees that the Work:

will be substantially complete within 150 calendar days after the date when the Contract Time commences to run as provided in paragraph 4.01 of the General Conditions, and completed and ready for final payment within 180 calendar days after the date when the Contract Time commences to run.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

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

- (a) Required Bid Security in the form of \_\_\_\_\_.
- (b) Unit Price Schedule (Page(s) 00300-5).
- (c) Trench Safety Affidavit (Page(s) 00300-6).
- (d) Schedule of Subcontractors (Page(s) 00300-7)
- (e) Schedule of Suppliers, Equipment and Materials (Page(s) 00300-8)

(f) Sworn Statements Under Section 287.133(3)(a), Florida Statutes, on Public Entity Crimes (Page(s) 00300-9 and 00300-10).

(g) (List other documents as pertinent): Certification of Drug Free Workplace Program (Page(s) 00300-11).

9. Communications concerning this Bid shall be telephoned or addressed to:

The phone number and address of BIDDER indicated below.

10. The terms used in this Bid which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents have the meanings assigned to them in the General Conditions.

11. BIDDER's Florida Contractor's License No. \_\_\_\_\_.

12. BIDDER covenants that it is qualified to do business in the State of Florida and has attached evidence of BIDDER's qualification to do business in the State of Florida, or if not attached, BIDDER covenants to obtain such evidence within five days of request by OWNER to provide evidence.

13. BIDDER represents that it is financially solvent and sufficiently experienced and competent to provide all goods and services required under this IFB and that all information provided in the Bid is true and correct in all respects.



## Unit Price Schedule

Item Description	Qty	Unit	Amount
<b>A. General</b>			
1. Mobilization	1	LS	_____
2. Bonds and Insurance	1	LS	_____
3. Permit Fees	1	LS	_____
4. Video Inspection of Site	1	LS	_____
5. Record Drawings	1	LS	_____
6. General Allowance	1	LS	\$ 25,000.00
<b>Subtotal A</b>			_____
 <b>B. Water Treatment Plant Improvements</b>			
1. Triplex Metering Pump Skid	1	LS	_____
2. Reverse Osmosis Post Chlorination Pump	1	LS	_____
3. Piping and Valves	1	LS	_____
4. Painting and Misc.	1	LS	_____
<b>Subtotal B</b>			_____
 <b>C. Electrical &amp; Instrumentation</b>			
1. Control Panel	1	LS	_____
2. Electrical Conduit, Wire, & Boxes	1	LS	_____
3. Instrumentation	1	LS	_____
4. SCADA System Programming	1	LS	_____
<b>Subtotal C</b>			_____
<b>Total Bid (Items A thru C)</b>			_____

PROJECT NO: B5038.00

**TRENCH SAFETY AFFIDAVIT**

(FAILURE TO COMPLETE THIS FORM MAY RESULT IN THE BID BEING DECLARED NON-RESPONSIVE)

\_\_\_\_\_ (NAME OF CONTRACTOR) hereby provides written assurance that compliance with applicable Trench Safety Standards identified in the Occupational Safety & Health Administration's Excavation Safety Standards, (OSHA) 29 C.F.R.S. 1926.650 Subpart P will be adhered to during trench excavation in accordance with Florida Statutes 553.60 through 553.64 inclusive (1990), "Trench Safety Act".

The undersigned acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida "Trench Safety Act" as summarized below: (Attach additional sheets as necessary)

Schedule Item	Trench Safety Measure (Slope, Trench Shield, etc.	Cost
		\$
		\$
		\$
		\$
		\$
		\$
		\$
	Total	\$

\_\_\_\_\_  
(Signature) (date)

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

Subscribed and Sworn to (or affirmed) before me on \_\_\_\_\_ (date) by

\_\_\_\_\_ (name). He/she is personally known to me or has

presented \_\_\_\_\_ (type of identification) as identification.

\_\_\_\_\_  
Notary Public Signature and Seal

\_\_\_\_\_  
Print Notary Name and Commission No.

SCHEDULE OF MAJOR SUBCONTRACTORS

List Proposed Major Subcontractors

Category of Work

<hr/>	<hr/>

SCHEDULE OF MAJOR EQUIPMENT AND MATERIALS

Description	Manufacturer	Model
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**SWORN STATEMENT UNDER SECTION 287.133(3)(a),  
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to \_\_\_\_\_  
by \_\_\_\_\_ [print name of the public entity]  
by \_\_\_\_\_ [print individual's name and title]  
for \_\_\_\_\_ [print name of entity submitting sworn statement]

whose business address is \_\_\_\_\_  
\_\_\_\_\_

and (if applicable) its Federal Employer Identification Number (FEIN) is \_\_\_\_\_

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: \_\_\_\_\_.)

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:
1. A predecessor or successor of a person convicted of a public entity crime; or
  2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.
5. I understand that a "person" as defined in Paragraph 287.133(1)(c), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. [Please indicate which statement applies.]

\_\_\_\_\_ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

\_\_\_\_\_ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

\_\_\_\_\_ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. [attach a copy of the final order]

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

\_\_\_\_\_  
[signature]

\_\_\_\_\_  
[date]

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

Subscribed and Sworn to (or affirmed) before me on \_\_\_\_\_ by  
[date]

\_\_\_\_\_. He/she is personally known to me or has presented  
[name]

\_\_\_\_\_ as identification.  
[type of identification]

\_\_\_\_\_  
[Notary's Signature and Seal]

\_\_\_\_\_  
Print Notary Name and Commission No.

Form PUR 7068 (Rev. 04/10/91)  
M/R 03/06/92

## CERTIFICATION OF DRUG FREE WORKPLACE PROGRAM

I certify the firm of \_\_\_\_\_ maintains a drug-free workplace program, and that the following conditions are met:

1. We publish a statement notifying employees that the unlawful manufacturer, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying that actions will be taken against employees for violations of such prohibitions.
2. We inform employees about the dangers of drug abuse in the workplace, the company's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. We give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection one (1).
4. In the statement specified subsection one (1) we notify the employee that; a condition of working in the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty nolo contendere to any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. We impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is convicted.
6. We make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

\_\_\_\_\_  
Contractor's Signature

BIDDERS'S QUALIFICATION QUESTIONNAIRE

(Include in Bids Envelope)

THE UNDERSIGNED GUARANTEES THE TRUTH AND ACCURACY OF ALL STATEMENTS AND ANSWERS HEREIN CONTAINED:

- A. Any information judged by OWNER OR ENGINEER to be false is grounds for rejection of Bid and Cost Proposal. (Use additional sheets as required to provide the required information.)
  
- B. The individual who holds the General Contractor's License shall be active in the management and ownership of the firm awarded the work and be available to provide their expertise for the project on an ongoing-basis. Provide the name of this individual for the complete duration of this project.

---

- 1a. State the numbers of years your organization has been doing business in Florida.

---

- 2. We normally perform \_\_\_\_\_% of the work with our own forces.

List trades below:\_\_\_\_\_

---

---

- 3. Have you ever failed to complete work awarded to you? If so, state where when and why

---

---

---

---

- 4. BIDDER shall have constructed at least five similar scope projects within the past five years. Provide the following information on an attached sheet.

Project Name:\_\_\_\_\_

Contract Amount:\_\_\_\_\_

Owner: \_\_\_\_\_ Phone No: \_\_\_\_\_

Consultant /Engineer \_\_\_\_\_ Phone No. \_\_\_\_\_

Owner Contact: \_\_\_\_\_ Phone No. \_\_\_\_\_

Type of Project (details): \_\_\_\_\_

Date Completed: \_\_\_\_\_

Contract Schedule (days): \_\_\_\_\_

Actual Completion Schedule: \_\_\_\_\_

5. BIDDER shall demonstrate the ability to complete projects on time within the contract completion dates. List ALL within the last three years (started, underway, or completed):

Project: \_\_\_\_\_

Contract Schedule (days) \_\_\_\_\_

Actual Completion Schedule (days) \_\_\_\_\_

6. List ALL projects within the past five years (started, underway, or completed) in which liquidated damages (LD) were incurred, either directly or indirectly:

Project: \_\_\_\_\_

LD Amount: \_\_\_\_\_

LD Unit Price: \_\_\_\_\_

7. BIDDER shall specifically name proposed superintendents to be utilized on this project and identify years of experience.

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

Position: \_\_\_\_\_

Years of Experience with BIDDER: \_\_\_\_\_

Type of Work Responsible For: \_\_\_\_\_

License: \_\_\_\_\_

8. BIDDER shall provide information related to the job safety and safety rating of the corporation: \_\_\_\_\_

9. (a) Please state your bonding capacity per project. \_\_\_\_\_

- (b) Please state your total bonding capacity. \_\_\_\_\_
- (c) Please provide name, address and contact person of your bonding company.

---

---

---

13. State the true, exact, correct and complete name of the partnership, corporation or trade name under which you do business. (If corporation, state the name of the president and secretary. If a partnership, state the name of all partners. If a trade name, state the name of the individuals who do business under the trade name).

---

- (a) The business is a \_\_\_\_\_
- (b) The address of the principal place of business is: \_\_\_\_\_
- (c) The name of the corporate officers, or partners, or individuals doing business under a trade name are as follows:

---

---

If a Corporation, attach a copy of the most recent good standing certificate issued by the Secretary of State of Florida.

Date \_\_\_\_\_

Bidder: \_\_\_\_\_

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

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

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

---

END OF BIDDER'S QUALIFICATION QUESTIONNAIRE

BIDDER'S QUALIFICATION QUESTIONNAIRE

00310-3

**00500**  
**AGREEMENT**

THIS AGREEMENT is dated and will be effective on the \_\_\_\_\_ day of \_\_\_\_\_ in the year 20\_\_\_\_, by and between the City of Lake Worth (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. The Work is generally described as follows: Furnish and install Chlorination System Improvements.

**ARTICLE 2. ENGINEER**

The Project has been designed by Mock, Roos & Associates, Inc., who is hereinafter called Engineer and who is to act as Owner's representative, assume all duties and responsibilities and have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

**ARTICLE 3. CONTRACT TIME.**

3.1 The Work will be substantially completed within 150 days from the date when the Contract Time commences to run as provided in paragraph 4.01 of the General Conditions and shall be finally complete and ready for final payment in accordance with paragraph 15.06 of the General Conditions within 180 days from the date when the Contract Time commences to run.

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

**3.3 LIQUIDATED DAMAGES. Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with the Contract Documents. 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 completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner Five Hundred and 00/100 dollars (\$ 500.00) for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion if Contractor shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner Five Hundred and 00/100 dollars (\$500.00) for each day that expires after the time specified in paragraph 3.1 for completion and readiness for final payment.**

3.4 In the Owner's sole discretion, a requested extension of time may be denied for delays resulting from normal weather conditions prevailing from normal weather conditions prevailing in the area as defined by the average of the last five (5) years of weather recorded or otherwise established by the Owner.

**ARTICLE 4. CONTRACT PRICE.**

4.1 Owner shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents, subject to adjustment as provided therein, in current funds as follows:

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

TOTAL OF ALL UNIT PRICES \_\_\_\_\_ (\$ \_\_\_\_\_)  
(use words) (figures)

which is based on the unit price(s) in the Bid Form Unit Price Schedule for Unit Bid Items numbered \_\_\_\_\_ to \_\_\_\_\_.

**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.

5.1 PROGRESS PAYMENTS. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as recommended by Engineer, on or about the 10<sup>th</sup> day of each month during construction as provided below. All progress payments will be on the basis of the progress of the Work measured by the schedule of values established in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided elsewhere in the Contract Documents.

5.1.1 Prior to Substantial Completion, the total of progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as Engineer shall determine, or Owner may withhold, in accordance with the General Conditions, less liquidated damages, if any.

- 90% of Work completed.
- 90% of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to Owner as provided in the General Conditions).
- 95% of the work complete after the Contractor has completed over 50% of the Work.

- 5.1.2 Upon Substantial Completion, in an amount sufficient to increase total payments to Contractor to 98% of the Contract Price, less such amounts as Engineer shall determine, or Owner may withhold, in accordance with the General Conditions, less liquidated damages, if any.

5.2 FINAL PAYMENT. Upon final completion and acceptance of the Work in accordance with paragraph 15.06 of the General Conditions, and settlement of all claims, including liquidated damages, if any, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said paragraph 15.06.

#### **ARTICLE 6. INTEREST.**

6.1 All payments due and not made within the time prescribed by section 218.735, Florida Statutes, shall bear interest at the rate of 1 percent per month in accordance with section 218.735, Florida Statutes, as amended from time to time.

#### **ARTICLE 7. CONTRACTOR'S REPRESENTATIONS.**

In order to induce Owner to enter into this Agreement Contractor makes the following representations:

7.1 Contractor has examined and carefully studied the Contract Documents and any data and reference items identified in the Contract Documents.

7.2 Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress and performance of the Work.

7.3 Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress and performance of the Work.

7.4 Contractor has studied carefully all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical data in such reports and drawings, and (2) reports and drawings related to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical data in such reports and drawings. Contractor accepts the determination set forth in the Contract Documents of the extent of the technical data contained in such reports and drawings upon which Contractor is entitled to rely, if any.

7.5 Contractor has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies, if any, (in addition to or to supplement those referred to in paragraph 7.4 above) which pertain to the subsurface or physical conditions at or adjacent to the Site or otherwise may affect the cost, progress, performance or furnishing of the Work as Contractor considers necessary for the performance or furnishing 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, explorations, tests, reports, studies or similar information or data are or will be required by Contractor for such purposes.

7.6 Contractor has reviewed and checked all information and data shown or indicated on the Contract Documents, if any, with respect to existing Underground Facilities at or adjacent to the Site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by Contractor in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents.

7.7 Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress and performance of the work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

7.8 Contractor has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents and based on the information and observations referred to above, the Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

7.9 Contractor has given Engineer written notice of all conflicts, errors or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

7.10 Contractor acknowledges that the Contract Documents are generally sufficient to indicate and convey an adequate understanding of all terms and conditions for performance and furnishing of the Work.

7.11 Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

7.12 Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

**ARTICLE 8. CONTRACT DOCUMENTS.**

The Contract Documents which comprise the entire Agreement between Owner and Contractor concerning the Work consist of the following:

8.1 This Agreement consisting of \_\_\_ pages.

8.2 Exhibits to this Agreement identified as:

- a. The Project Manual (pages \_\_\_ to \_\_\_, inclusive);
- b. Contractor's Bid (pages \_\_\_ to \_\_\_, inclusive);
- c. Permits (pages \_\_\_ to \_\_\_, inclusive);
- d. Other: \_\_\_\_\_

8.3 Performance Bond and Payment Bond consisting of \_\_\_\_ pages (plus Power of Attorney Forms as applicable).

8.4 Notice of Award and Notice to Proceed.

8.5 General Conditions consisting of 65 pages.

8.6 Supplementary Conditions consisting of 6 pages.

8.7 Bid documents as listed in the table of contents of the Project Manual.

8.8 Specifications consisting of 59 pages.

8.9 Drawings not attached hereto but are listed in Section 00860 List of Drawings.

8.10 Addenda numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive.

8.11 Contractor's Bid consisting of \_\_\_\_ pages.

8.12 Documentation submitted by Contractor prior to Notice of Award.

8.13 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to the General Conditions.

8.14 The documents listed under Article 8 above are attached to this Agreement (except as expressly noted otherwise above).

8.15 Any other document attached hereto or incorporated herein by the Owner.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in the General Conditions.

*Governing Order of Contract Documents* - The Contract Documents include various divisions, sections and conditions which are essential parts for the work to be provided by the Contractor. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, the following precedence will govern the interpretation of the Contract Documents prior to award of the contract.

1. Agreement
2. Addenda
3. Instructions to Bidders
4. Special Conditions
5. Supplementary Conditions
6. General Conditions
7. Technical Specifications/Drawings/Plans
8. Bid Documents

After award, Work Change Directives, Change Orders, amendments and revisions to plans and specifications will take precedence over any of the above. In case of discrepancy among technical specifications, drawings and plans, the most restrictive shall govern. Detailed plans shall have precedence over general plans. In the event that any conflicts cannot be resolved by reference to this Governing Order of Contract Documents provision, then City shall resolve the conflict in any manner which is acceptable to City and which comports with the overall intent of the Contract Documents.

#### **ARTICLE 9. MISCELLANEOUS.**

9.1 *Terms.* Terms used in this Agreement will have the meanings indicated in the General Conditions.

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

9.3 *Successors and assigns.* Owner and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

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

9.5 *Public entity crimes.* A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a Bid on a Contract to provide any goods or services to a public entity, may not submit a Bid on a Contract with a public entity for the construction or repair of a public building or public work, may not be awarded or perform Work as a Contractor, Supplier, Subcontractor, or Consultant under a Contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for Category Two for a period of 36 months from the date of being placed on the convicted vendor list.

9.6 *Inspector General.* In accordance with Palm Beach County ordinance number 2011-009, the Contract Documents may be subject to investigation and/or audit by the Palm Beach County Inspector General. Contractor should review such ordinance in order to be aware of its rights and/or obligations under such ordinance and as applicable.

9.7 *Waiver.* Failure of either party to enforce or exercise any right(s) under the Contract Documents shall not be deemed a waiver of either party's right to enforce said right(s) at any time thereafter.

9.8 *Waiver of jury trial.* TO ENCOURAGE PROMPT AND EQUITABLE RESOLUTION OF ANY LITIGATION, EACH PARTY HEREBY WAIVES ITS RIGHTS TO A TRIAL BY JURY IN ANY LITIGATION RELATED TO THE CONTRACT DOCUMENTS.

9.9 *Independent Contractor.* The Contractor is, and shall be, in the performance of all Work under the Contract Documents, an Independent Contractor, and not an employee, agent, or servant of the Owner. All persons engaged in any of the Work performed pursuant to the Contract Documents shall at all times and in all places be subject to the Contractor's sole direction, supervision and control.

9.10 *Access and audits.* The Contractor shall maintain adequate records to justify all charges, expenses, and costs incurred in estimating and performing the Work for at least five (5) years after final payment is made. The Owner shall have access to such books, records, and documents as required for the purpose of inspection or audit during normal business hours at the Contractor's place of business. Under no circumstances will Contractor be required to disclose any confidential or proprietary information regarding its products and service costs.

9.11 *Preparation.* The Contract Documents shall not be construed more strongly against either party regardless of who was more responsible for its preparation.

9.12 *Public Records Law.* Contractor shall comply with Florida's Public Records Laws, and specifically agrees to:

- a) Keep and maintain public records required by the Owner to perform the service.
- b) Upon request from the Owner's custodian of public records, provide the Owner with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes or as otherwise provided by law.
- c) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the Contractor does not transfer the records to the Owner.
- d) Upon completion of the contract, transfer, at no cost, to the Owner all public records in possession of the Contractor or keep and maintain public records required by the Owner to perform the service. If the Contractor transfers all public records to the Owner upon completion of the contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of the Contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the Owner, upon request from the Owner's custodian of public records, in a format that is compatible with the information technology systems of the Owner.

**IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN**

AGREEMENT

00500-7

**OF PUBLIC RECORDS OR DESIGNEE AT: ATTENTION DEBBIE ANDREA, (561) 586-1660 OR [DANDREA@LAKEWORTH.ORG](mailto:DANDREA@LAKEWORTH.ORG) OR 7 NORTH DIXIE HIGHWAY, LAKE WORTH, FL 33460.**

9.13 *Enforcement costs.* If any legal action or other proceeding is brought for the enforcement of the Contract Documents, or because of an alleged dispute, breach, default or misrepresentation in connection with any provisions of the Contract Documents, the parties agree that each party shall be responsible for its own attorney's fees.

9.14 *Binding authority.* Contractor's representative below has full power, authority and legal right to execute and deliver these Contract Documents and perform all of its obligations under the Contract Documents. By signing the Contract Documents, the representative hereby represents to the Owner that he/she has the authority and full legal power to execute the Contract Documents and any and all documents necessary to effectuate and implement the terms of the Contract Documents on behalf of the party for whom he or she is signing and to bind and obligate such party with respect to all provisions contained in the Contract Documents.

9.15 *Assignment of warranties.* Contractor shall assign to Owner all warranties extended to Contractor by material suppliers. If an assignment of warranty requires the material supplier to consent to same, then Contractor shall secure the material supplier's consent to assign said warranties to Owner.

9.16 *Contractor's certifications.* Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract Documents. For the purposes of this paragraph:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract Documents to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract Documents.

9.17 *Construction defects.* PURSUANT TO SECTION 558.005, FLORIDA STATUTES, ANY CLAIMS FOR CONSTRUCTION DEFECTS ARE NOT SUBJECT TO THE NOTICE AND CURE PROVISIONS OF CHAPTER 558, FLORIDA STATUTES.

9.18 *Delays; Contractor's remedies.* NOTWITHSTANDING ANY PROVISION ELSEWHERE IN THE CONTRACT DOCUMENTS, NO CLAIM FOR DAMAGES OR ANY CLAIM OTHER THAN FOR AN EXTENSION OF TIME SHALL BE MADE OR ASSERTED AGAINST OWNER BY REASON OF ANY DELAYS. Contractor shall not be entitled to an increase in the Contract Price or payment or compensation of any kind from Owner for direct, indirect, consequential, impact or other costs, expenses or damages, including, but not limited to, costs of acceleration or inefficiency, arising because of delay, disruption, interference, or hindrance, be it reasonable or unreasonable, foreseeable or avoidable or unavoidable. Contractor

shall be entitled only to extensions of the Contract Time as the sole and exclusive remedy for such resulting delays, in accordance with and the extent specifically provided herein.

**REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK**  
**SIGNATURE PAGE FOLLOWS**

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in four parts. Two counterparts have been delivered to Owner, and one counterpart each to Contractor and Engineer. All portions of the Contract Documents have been signed or identified by Owner and Contractor or by Engineer on their behalf.

**CITY OF LAKE WORTH, FLORIDA**

By: \_\_\_\_\_  
Pam Triolo, Mayor

ATTEST

\_\_\_\_\_  
Pamela J. Lopez, City Clerk

Approved as to form and legal sufficiency:

\_\_\_\_\_  
Glen J. Torcivia, City Attorney

**CONTRACTOR:** \_\_\_\_\_

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

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

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

[Corporate Seal]

STATE OF \_\_\_\_\_)  
COUNTY OF \_\_\_\_\_)

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 2016 by \_\_\_\_\_, as \_\_\_\_\_ of \_\_\_\_\_, Inc., a Florida corporation, and who is personally known to me or who has produced the following \_\_\_\_\_ as identification.

Notary Public:  
\_\_\_\_\_

PROJECT: Water Treatment Plant Chlorination System  
Improvements for City of Lake Worth  
Project No. WT 1609  
IFB #16

**00501**  
**OPINION OF ATTORNEY**

This is to certify that I have examined the attached Contract Documents, that after such examination I am of the opinion that the execution of the Agreement, the Performance Bond and Payment Bond are in due and proper form.

\_\_\_\_\_  
Attorney for Owner

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

00610  
**Construction 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 Principal Place of Business):

OWNER (Name and Address):

**CONSTRUCTION CONTRACT**

Date:

Amount:

Description (Name and Location):

**BOND**

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond Form:

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

**SURETY**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

**SURETY**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

EJCDC No. 1910-28A (1984 Edition)

Prepared through the joint efforts of The Surety Association of America, Engineers' Joint Contract Documents Committee, The Associated General Contractors of America, and the American Institute of Architects.

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.
3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
  - 3.1. The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and
  - 3.2. The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and
  - 3.3. The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.
4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
  - 4.1. Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or
  - 4.2. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
  - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or
  - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or
    2. Deny liability in whole or in part and notify the Owner citing reasons therefor.
5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:
  - 6.1. The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
  - 6.2. Additional legal including appellate proceedings, design professional and delay costs and expenses resulting from the Contractor's default, and \*
  - 6.3. Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.
8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
  - 12.1. Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
  - 12.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
  - 12.3. Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.
  - 12.4. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

\* resulting from the actions or failure to act of the Surety under Paragraph 4; and

This Bond is executed pursuant to Florida Statutes Section 255.05 or Section 713.23, whichever is applicable, and is subject to the notice and time limitation provisions.

(FOR INFORMATION ONLY—Name, Address and Telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

Mock, Roos & Associates, Inc.  
5720 Corporate Way  
West Palm Beach, FL 33407

CONSTRUCTION PERFORMANCE BOND

00610-2

00620  
**Construction 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 Principal Place of Business):

OWNER (Name and Address):

**CONSTRUCTION CONTRACT**

Date:

Amount:

Description (Name and Location):

**BOND**

Date (Not earlier than Construction Contract Date):

Amount:

Modifications to this Bond Form:

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

**SURETY**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

**SURETY**

Company: \_\_\_\_\_ (Corp. Seal)

Signature: \_\_\_\_\_  
Name and Title:

ICDC No. 1910-28B (1984 Edition)

Prepared through the joint efforts of the Surety Association of America, Engineers' Joint Contract Documents Committee, The Associated General Contractors of America, American Institute of Architects, American Subcontractors Association, and the Associated Specialty Contractors.

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:

- 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
- 2.2. Defends, indemnifies and holds harmless the Owner from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

- 4.1. Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim. <sup>(see Note 1)</sup>
- 4.2. Claimants who do not have a direct contract with the Contractor:
  - 1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 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 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 the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
  - 3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

- 6.1. Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
- 6.2. Pay or arrange for payment of any undisputed amounts.

7. The 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 the Surety.

8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract

Note 1: As an additional requirement any claimant, except a laborer, who is not in privity with the Contractor and who has not received payment for his or her work shall, within forty-five days after beginning to furnish labor, materials or supplies, furnish the Contractor with a Notice that he intends to look to the Bond for protection.

This Bond is executed pursuant to Florida Statutes Section 255.05 or Section 713.23, whichever is applicable, and is subject to the notice and time limitation provisions.

(FOR INFORMATION ONLY—Name, Address and Telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

Mock, Roos & Associates, Inc.  
5720 Corporate Way  
West Palm Beach, FL 33407

and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner. Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for 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. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

11. 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 2 years from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2 (iii), or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the 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 or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the 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 the Contractor or with a subcontractor of the 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 Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

PROJECT: Water Treatment Plant Chlorination System  
Improvements for City of Lake Worth  
Project No. WT 1609  
IFB #16

**SECTION 00630**  
**NOTICE OF COMPLIANCE WITH CHAPTER 556, FLORIDA STATUTES**

The undersigned Contractor does hereby confirm to the Owner and Engineer that the Contractor has reviewed the provisions of Chapter 556, Florida Statutes, and has provided to “Sunshine State One-Call of Florida, Inc.” the information required under F.S. 556.105 before the commencement of any excavation or demolition required for the Work.

Executed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(name of Contractor)

\_\_\_\_\_  
(signature)

\_\_\_\_\_  
(print name)

\_\_\_\_\_  
(title)

END OF SECTION



00680  
APPLICATION FOR PAYMENT NO. \_\_\_\_\_

Project Water Treatment Plant Chlorination System Improvements for City of Lake Worth – Project No. WT 1609

Application is made for payment, as hereinafter shown, in connection with this Agreement:

Total Work to Date - see attached schedule	\$ _____
Total Material Suitably Stored - see attached schedule	\$ _____
Gross Amount Due	\$ _____
Less _____ % Retainage	\$ _____
Amount Due to Date	\$ _____
Less Previous Applications	\$ _____
Amount Due This Application	\$ _____

Original Contract Price	\$ _____
Net Change Orders	\$ _____
Current Contract Price	\$ _____
Value of Work Remaining to be Done	\$ _____

Contractor's Certification:

The undersigned Contractor certifies that (1) all previous progress payments received from Owner on account of Work done under the Agreement referred to above have been applied to discharge in full all obligations of Contractor incurred in connection with Work covered by prior Applications for Payment numbered 1 through \_\_\_\_\_, inclusive; and (2) title to all materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all liens, claims, security interests and encumbrances (except such as covered by Bond acceptable to Owner).

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

\_\_\_\_\_  
Contractor and Mailing Address

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

State of \_\_\_\_\_ )  
County of \_\_\_\_\_ )ss

Subscribed and Sworn to (or affirmed) before me on \_\_\_\_\_ (date)  
personally appeared \_\_\_\_\_ (name).

He/she is personally known to me or has presented \_\_\_\_\_  
\_\_\_\_\_ (type of identification) as identification. Who being so duly sworn, did depose and say that he/she is \_\_\_\_\_ of the Contractor above mentioned; that he/she executed the above Application for Payment and statement on behalf of said Contractor; and that all of the statements contained therein are true, correct and complete.

\_\_\_\_\_  
Notary Public Signature and Seal

\_\_\_\_\_  
Print Notary Name and Commission No.

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

MOCK, ROOS & ASSOCIATES, INC.

Date: \_\_\_\_\_

By: \_\_\_\_\_  
(Name) (Title)

Date: \_\_\_\_\_

CITY OF LAKE WORTH  
By \_\_\_\_\_  
(Name) (Title)

00681  
**SCHEDULE OF VALUES AND WORK COMPLETED**

PROJECT TITLE \_\_\_\_\_

CONTRACTOR \_\_\_\_\_

FOR PERIOD ENDING \_\_\_\_\_

TO ACCOMPANY APPLICATION NO. \_\_\_\_\_

ITEM	CONTRACTOR'S Schedule of Values			Work Completed	
	Unit Price	Quantity	Amount	Quantity	Amount
	\$		\$		\$
NOTE: CONTRACTOR SHALL PREPARE APPROPRIATE SCHEDULE WITH ALL CONTRACT ITEMS					
SHOWN FOR ATTACHMENT TO EACH APPLICATION FOR PAYMENT.					
			Total (Original Contract)		\$ _____
C.O. No. 1					
C.O. No. 1	NOTE: CHANGE ORDER(S) SHALL BE ITEMIZED AS APPLICABLE.				

TOTAL WORK TO DATE \$ \_\_\_\_\_

MATERIALS SUITABLY STORED

NOTE: CONTRACTOR TO ITEMIZE AND ATTACH APPROPRIATE INVOICES

TOTAL MATERIAL SUITABLY STORED \$ \_\_\_\_\_

Accompanying Documentation (Contractor to itemize):

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

## STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



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

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

Copyright © 2013:

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

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

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

The copyright for this document is owned jointly by the three sponsoring organizations listed above. The National Society of Professional Engineers is the Copyright Administrator for the EJCDC documents; please direct all inquiries regarding EJCDC copyrights to NSPE.

NOTE: EJCDC publications may be purchased at [www.ejcdc.org](http://www.ejcdc.org), or from any of the sponsoring organizations above.

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

5.06	Hazardous Environmental Conditions at Site.....	17
Article 6 – Bonds and Insurance .....		19
6.01	Performance, Payment, and Other Bonds .....	19
6.02	Insurance—General Provisions .....	19
6.03	Contractor’s Insurance .....	20
6.04	Owner’s Liability Insurance .....	23
6.05	Property Insurance.....	23
6.06	Waiver of Rights .....	25
6.07	Receipt and Application of Property Insurance Proceeds.....	25
Article 7 – Contractor’s Responsibilities.....		26
7.01	Supervision and Superintendence .....	26
7.02	Labor; Working Hours .....	26
7.03	Services, Materials, and Equipment.....	26
7.04	“Or Equals” .....	27
7.05	Substitutes.....	28
7.06	Concerning Subcontractors, Suppliers, and Others .....	29
7.07	Patent Fees and Royalties .....	31
7.08	Permits .....	31
7.09	Taxes.....	32
7.10	Laws and Regulations .....	32
7.11	Record Documents.....	32
7.12	Safety and Protection.....	32
7.13	Safety Representative .....	33
7.14	Hazard Communication Programs .....	33
7.15	Emergencies .....	34
7.16	Shop Drawings, Samples, and Other Submittals.....	34
7.17	Contractor’s General Warranty and Guarantee.....	36
7.18	Indemnification .....	37
7.19	Delegation of Professional Design Services .....	37
Article 8 – Other Work at the Site .....		38
8.01	Other Work.....	38
8.02	Coordination.....	39
8.03	Legal Relationships.....	39

Article 9 – Owner’s Responsibilities .....	40
9.01 Communications to Contractor .....	40
9.02 Replacement of Engineer .....	40
9.03 Furnish Data .....	40
9.04 Pay When Due .....	40
9.05 Lands and Easements; Reports, Tests, and Drawings .....	40
9.06 Insurance .....	40
9.07 Change Orders.....	40
9.08 Inspections, Tests, and Approvals .....	41
9.09 Limitations on Owner’s Responsibilities .....	41
9.10 Undisclosed Hazardous Environmental Condition .....	41
9.11 Evidence of Financial Arrangements .....	41
9.12 Safety Programs .....	41
Article 10 – Engineer’s Status During Construction .....	41
10.01 Owner’s Representative .....	41
10.02 Visits to Site .....	41
10.03 Project Representative .....	42
10.04 Rejecting Defective Work.....	42
10.05 Shop Drawings, Change Orders and Payments .....	42
10.06 Determinations for Unit Price Work .....	42
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work .....	42
10.08 Limitations on Engineer’s Authority and Responsibilities.....	42
10.09 Compliance with Safety Program .....	43
Article 11 – Amending the Contract Documents; Changes in the Work.....	43
11.01 Amending and Supplementing Contract Documents.....	43
11.02 Owner-Authorized Changes in the Work .....	44
11.03 Unauthorized Changes in the Work .....	44
11.04 Change of Contract Price.....	44
11.05 Change of Contract Times .....	45
11.06 Change Proposals .....	45
11.07 Execution of Change Orders.....	46
11.08 Notification to Surety .....	47
Article 12 – Claims .....	47

12.01	Claims .....	47
Article 13	– Cost of the Work; Allowances; Unit Price Work .....	48
13.01	Cost of the Work .....	48
13.02	Allowances .....	50
13.03	Unit Price Work .....	51
Article 14	– Tests and Inspections; Correction, Removal or Acceptance of Defective Work .....	52
14.01	Access to Work.....	52
14.02	Tests, Inspections, and Approvals.....	52
14.03	Defective Work.....	53
14.04	Acceptance of Defective Work.....	53
14.05	Uncovering Work.....	53
14.06	Owner May Stop the Work .....	54
14.07	Owner May Correct Defective Work.....	54
Article 15	– Payments to Contractor; Set-Offs; Completion; Correction Period.....	55
15.01	Progress Payments .....	55
15.02	Contractor’s Warranty of Title .....	58
15.03	Substantial Completion .....	58
15.04	Partial Use or Occupancy .....	59
15.05	Final Inspection .....	59
15.06	Final Payment.....	59
15.07	Waiver of Claims.....	61
15.08	Correction Period .....	61
Article 16	– Suspension of Work and Termination.....	62
16.01	Owner May Suspend Work .....	62
16.02	Owner May Terminate for Cause .....	62
16.03	Owner May Terminate For Convenience .....	63
16.04	Contractor May Stop Work or Terminate .....	63
Article 17	– Final Resolution of Disputes.....	64
17.01	Methods and Procedures.....	64
Article 18	– Miscellaneous.....	64
18.01	Giving Notice .....	64
18.02	Computation of Times.....	64
18.03	Cumulative Remedies.....	64

18.04	Limitation of Damages .....	65
18.05	No Waiver.....	65
18.06	Survival of Obligations.....	65
18.07	Controlling Law.....	65
18.08	Headings.....	65

## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

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

has declined to address. A demand for money or services by a third party is not a Claim.

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

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

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

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

1.02 *Terminology*

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

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

## ARTICLE 2 – PRELIMINARY MATTERS

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

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

### 2.02 *Copies of Documents*

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

### 2.03 *Before Starting Construction*

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

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

#### 2.04 *Preconstruction Conference; Designation of Authorized Representatives*

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

#### 2.05 *Initial Acceptance of Schedules*

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

#### 2.06 *Electronic Transmittals*

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

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

### ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

#### 3.01 *Intent*

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

#### 3.02 *Reference Standards*

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

#### 3.03 *Reporting and Resolving Discrepancies*

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

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

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

B. *Resolving Discrepancies:*

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

3.04 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

### 3.05 *Reuse of Documents*

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

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

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

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

### 4.02 *Starting the Work*

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

### 4.03 *Reference Points*

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

### 4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

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

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

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

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

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

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

### **5.02 *Use of Site and Other Areas***

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

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

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

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

### 5.03 *Subsurface and Physical Conditions*

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

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

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

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

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

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

#### 5.05 *Underground Facilities*

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

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

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

5.06 *Hazardous Environmental Conditions at Site*

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

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

## ARTICLE 6 – BONDS AND INSURANCE

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

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

### 6.02 *Insurance—General Provisions*

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

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

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

### 6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
  - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
  - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

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

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
  - 1. include at least the specific coverages provided in this Article.
  - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
  - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
  - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
  - 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

#### 6.04 *Owner's Liability Insurance*

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

#### 6.05 *Property Insurance*

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

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

## 6.06 *Waiver of Rights*

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

## 6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

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

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

### **7.01 *Supervision and Superintendence***

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

### **7.02 *Labor; Working Hours***

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

### **7.03 *Services, Materials, and Equipment***

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

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

#### 7.04 "Or Equals"

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

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

#### 7.05 *Substitutes*

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

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

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

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

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

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

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

7.08 *Permits*

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

#### 7.09 *Taxes*

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

#### 7.10 *Laws and Regulations*

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

#### 7.11 *Record Documents*

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

#### 7.12 *Safety and Protection*

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

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

#### 7.13 *Safety Representative*

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

#### 7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 7.15 *Emergencies*

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

#### 7.16 *Shop Drawings, Samples, and Other Submittals*

##### A. *Shop Drawing and Sample Submittal Requirements:*

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

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

##### 1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

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

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

E. *Resubmittal Procedures:*

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

7.17 *Contractor's General Warranty and Guarantee*

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

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

#### 7.18 *Indemnification*

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

#### 7.19 *Delegation of Professional Design Services*

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

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

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

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

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

## 8.02 *Coordination*

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

## 8.03 *Legal Relationships*

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

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

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

### 9.01 *Communications to Contractor*

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

### 9.02 *Replacement of Engineer*

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

### 9.03 *Furnish Data*

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

### 9.04 *Pay When Due*

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

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

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

### 9.06 *Insurance*

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

### 9.07 *Change Orders*

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

9.08 *Inspections, Tests, and Approvals*

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

9.09 *Limitations on Owner's Responsibilities*

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

9.10 *Undisclosed Hazardous Environmental Condition*

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

9.11 *Evidence of Financial Arrangements*

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

9.12 *Safety Programs*

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

**ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION**

10.01 *Owner's Representative*

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

10.02 *Visits to Site*

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

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

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

10.04 *Rejecting Defective Work*

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

10.05 *Shop Drawings, Change Orders and Payments*

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

10.06 *Determinations for Unit Price Work*

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

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

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

10.08 *Limitations on Engineer's Authority and Responsibilities*

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

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

10.09 *Compliance with Safety Program*

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

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

11.01 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
  - 1. *Change Orders:*
    - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
    - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
  - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

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

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

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

#### 11.03 *Unauthorized Changes in the Work*

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

#### 11.04 *Change of Contract Price*

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

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

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

#### 11.05 *Change of Contract Times*

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

#### 11.06 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

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

#### 11.07 Execution of Change Orders

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

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

11.08 *Notification to Surety*

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

**ARTICLE 12 – CLAIMS**

12.01 *Claims*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## 13.02 Allowances

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

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

### 13.03 *Unit Price Work*

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

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

### 14.01 *Access to Work*

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

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

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

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

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

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

#### 14.03 *Defective Work*

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

#### 14.04 *Acceptance of Defective Work*

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

#### 14.05 *Uncovering Work*

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

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

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

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

#### 14.07 *Owner May Correct Defective Work*

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

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

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

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

### **15.01 Progress Payments**

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

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

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

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

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

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

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

#### 15.03 *Substantial Completion*

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

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

#### 15.04 *Partial Use or Occupancy*

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

#### 15.05 *Final Inspection*

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

#### 15.06 *Final Payment*

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

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

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

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

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

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

**D. *Payment Becomes Due:*** Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

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

15.08 *Correction Period*

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

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

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

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

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

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

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

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

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

#### 16.03 *Owner May Terminate For Convenience*

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

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

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

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

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

### *17.01 Methods and Procedures*

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

## **ARTICLE 18 – MISCELLANEOUS**

### *18.01 Giving Notice*

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

### *18.02 Computation of Times*

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

### *18.03 Cumulative Remedies*

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

18.04 *Limitation of Damages*

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

18.05 *No Waiver*

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

18.06 *Survival of Obligations*

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

18.07 *Controlling Law*

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

18.08 *Headings*

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

**00800**  
**SUPPLEMENTARY CONDITIONS**

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect. The General Conditions may also be supplemented elsewhere in the Contract Documents.

The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract, EJCDC C-700 (2013 Edition) have the meanings assigned to them in the General Conditions.

**PART 1 - MODIFICATIONS AND SUPPLEMENTS TO GENERAL CONDITIONS**

**SC-2.01 Delivery of Bonds and Evidence of Insurance**

**Delete paragraph 2.01 C. of the General Conditions in its entirety and insert the following in its place:**

C. This subsection is not needed.

**SC-3.03 Reporting and Resolving Discrepancies**

**Delete the paragraph 3.03 A.3 in its entirety and insert the following in its place:**

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 or unless Contractor reasonably should have known of such conflict, error, ambiguity or discrepancy.

**SC-4.01 Commencement of Contract Time; Notice to Proceed**

**Delete the last sentence of paragraph 4.01 A. of the General Conditions and insert the following in its place:**

In no event will the Contract Time commence to run later than the 120th day after the day of the Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier, unless agreed otherwise by Owner and Contractor in writing.

**SC-5.03 Subsurface and Physical Conditions**

**Delete paragraphs 5.03 A. and 5.03 B. in of the General Conditions in their entirety and insert the following in their place:**

**5.03 Subsurface and Physical Conditions**

A. Reports and Drawings: Division 1: General Requirements of the Specifications shall identify those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the site and drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the site that have been utilized by Engineer in preparation of the Contract Documents. Contractor may rely upon the accuracy of any Technical Data contained in such reports that is specifically referenced in Division 1: General Requirements as Technical Data that can be relied on by Contractor. Except as indicated above, Contractor shall have full responsibility with respect to subsurface and physical conditions at the site.

B. Contractor may rely on the technical data as set forth in subsection A above, but such reports and drawings are not Contract 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; or
2. Other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. Any Contractor interpretation of or conclusion drawn from any Technical data or any such other data, interpretations, opinions, or information.

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

**Delete paragraphs 5.06 A., 5.06 B. and 5.06 I. in of the General Conditions in their entirety and insert the following in their place:**

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. This subsection is not needed.
- I. This subsection is not needed.

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

**Add the following language at the end of Paragraph 6.01 A.:**

In accordance with section 255.05(1), Fla. Stat., as amended from time to time, before commencing the Work or before recommencing the Work after a default or abandonment, the Contractor shall execute and record in the public records of Palm Beach County a payment and performance bond with a surety insurer authorized to do business in the State of Florida, and the Contractor shall be required to provide to the Owner a certified copy of the recorded bond. The Owner may not make a payment to the Contractor until the Contractor has complied with section 255.05(1)(b), Fla. Stat.

#### **SC-6.02 Insurance – General Provisions**

**Add the following language at the end of Paragraph 6.02 C.:**

Contractor shall deliver the required certificates of insurance prior to the commencement of any Work at the site. All of the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by Contractor shall be "claims made" and contain the name of the Project.

#### **SC-6.03 Contractor's Insurance**

**Delete the following language in Paragraph 6.03 G.:**

*G. Additional insureds:* The Contractor's commercial general liability, ~~automobile liability~~, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

**Add the following new paragraph immediately after Paragraph 6.03J.:**

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

1. Worker's Compensation, and related coverages under Paragraphs 6.03 A.1. and 6.03 A.2. of the General Conditions:

State: Statutory

Applicable Federal (e.g. Longshoreman's and Harbor Workers' Compensation, Maritime, Jones Act, etc.): Statutory

Employer's liability:

Bodily injury, each accident \$1,000,000

Bodily injury by disease, each employee \$1,000,000

Bodily injury/disease aggregate \$1,000,000

2. Contractor's Commercial General Liability under paragraphs 6.03 B. and 6.03 C. of the General Conditions:

General Aggregate \$3,000,000

Products and Completed Operations Aggregate \$3,000,000

Personal and Advertising Injury \$1,000,000

Each Occurrence (Bodily Injury and Property Damage) \$1,000,000

3. Automobile Liability under paragraph 6.03 D. of the General Conditions:

Combined Single Limit of \$1,000,000

4. Excess or Umbrella Liability under paragraph 6.03 E. of the General Conditions:

Per Occurrence \$If applicable

General Aggregate \$If applicable

#### **SC-6.04 Owner's Liability Insurance**

**Delete paragraphs 6.04 A. and 6.04 B. of the General Conditions in their entirety and insert the following in their place:**

A. This Subsection is not needed.

B. This subsection is not needed.

#### **SC-6.05 Property Insurance**

**Add the following language at the end of paragraph 6.05 C:**

The maximum deductible amount for any insurance required under paragraph 6.05 shall be \$5,000.00.

#### **SC-6.06 Waiver of Rights**

**Delete paragraphs 6.06 B. and 6.06 C. of the General Conditions in their entirety and insert the following in their place:**

- B. This Subsection is not needed.
- C. This subsection is not needed.

#### **SC-7.01 Supervision and Superintendence**

**Add the following language at the end of paragraph 7.01 B.:**

The superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

#### **SC-7.07 Patent Fees and Royalties**

**Delete paragraph 7.07 B. and insert the following in its place:**

- B. This subsection is not needed.

#### **SC-7.08 Permits**

**Add the following language at the end of paragraph 7.08 A:**

Contractor shall obtain and pay for the following permits:

1. City of Lake Worth Building Permit. Include in the bid amount a 3-percent of appropriate items permit fee based on the bid cost. This permit fee amount will be adjusted based on the actual fee charged and the difference credited, as applicable.
2. Any other applicable permits.

#### **SC-7.18 Indemnification**

**Delete paragraph 7.18 A. and insert the following in its place:**

- A. Contractor shall indemnify and hold harmless Owner and Engineer and their respective officers and employees from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in the performance of the Contract Documents. Compliance with any insurance requirements required elsewhere in the Contract Documents shall not relieve Contractor of its liability and obligation to hold harmless and indemnify the City as set forth in this section. It is the specific intent of the parties hereto that the foregoing indemnification complies with section 725.06, Florida Statutes. It is further the specific intent and agreement of the parties that all of the Contract Documents on this Project are hereby amended to include the foregoing indemnification and the required "Specific Consideration" therefore. Nothing contained in the Contract Documents shall be construed or interpreted as consent by the City to be sued, nor shall the Contract Documents be construed as a waiver of sovereign immunity beyond the waiver provided in section 768.28, Fla. Stat., as amended from time to time.

#### **SC-10.03 Project Representative**

**Add the following new paragraph immediately after paragraph 10.03 A.:**

- B. On this Project, by agreement with the Owner, Engineer will not furnish a Resident Project Representative to represent Engineer at the Site or assist Engineer in observing the progress and quality of the Work. However, if the Engineer does furnish a Resident Project Representative per

paragraph 10.03 of the General Conditions, the duties, etc. of the representative shall be as provided in the Listing of the Duties, Responsibilities and Limitations of Authority of the Resident Project Representative as included in the Project Manual. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity shall be presented at the Preconstruction Conference or as otherwise set forth in the Project Manual.

#### **SC-10.04 Rejecting Defective Work**

**Add the following language at the end of paragraph 10.04 A.:**

- A. Engineer also has the authority to disapprove or reject Work which Engineer believes will not produce a completed Project that conforms to the Contract documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

#### **SC-11.04 Change of Contract Price**

**Delete paragraphs 11.04 C.2.c. and 11.04 C.2.e. in their entirety and insert the following in their place:**

- 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 maximum allowable to Contractor on account of overhead and profit of all Subcontractors shall be fifteen percent;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to ten percent of such net decrease; and

#### **SC-13.03 Unit Price Work**

**Delete paragraph 13.03 E in its entirety and insert the following in its place:**

- E. Contractor may not make a claim for additional expenses incurred as a result of a difference between final quantity of any item(s) of Unit Price Work and the estimated quantity of such item(s) in the Contract Documents, unless specifically allowed in the Bid Form. Any adjustments specifically allowed shall be made in accordance with directions in the Bid Form.

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

**Add the following new paragraph immediately after paragraph 16.03 B.:**

- C. If a court of competent jurisdiction finds that the Owner wrongfully terminated this Contract, then in such event, this Contract shall be deemed terminated for convenience as provided for in this paragraph, and the Contractor shall not be entitled to loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination but may be entitled to all items as authorized herein.

#### **SC-18.07 Controlling Law**

**Delete paragraph 18.07 A. in its entirety and insert the following in its place:**

- A. This Contract is to be governed by the laws of the State of Florida. The venue for any and all legal action necessary to enforce the Contract Documents will be in Palm Beach County, Florida.

## **PART 2 - ADDITIONAL SUPPLEMENTARY CONDITIONS**

1. ATTACHMENTS:

The following forms included in the Project Manual shall be used by Contractor for submittals required by the Contract Documents (unless Owner accepts other form):

- a. Construction Performance Bond (00610).
- b. Construction Payment Bond (00620).
- c. Notice of Compliance with Chapter 556, Florida Statutes (00630).
- d. Contractor's Affidavit to Owner (00670).
- e. Form of Application for Payment (00680).

END OF SECTION

**00820**  
**SPECIAL CONDITIONS**

**CITY OF LAKE WORTH PURCHASING DEPARTMENT REQUIREMENTS**

**SPC-1 APPROVAL OF ACCOUNTING SYSTEM**

Except with respect to firm fixed-price contracts, no contract type shall be used unless the Purchasing Manager has determined in writing that:

- 1) The proposed contractor's accounting system will permit timely development of all necessary cost data in the form required by the specific contract type contemplated; and
- 2) The proposed contractor's accounting system is adequate to allocate costs in accordance with generally accepted cost accounting principles.

**SPC-2 RIGHT TO INSPECT PLANT**

The City may, at reasonable times, inspect any part of the plant, place of business, or work site of a contractor or subcontractor which is pertinent to the performance of any contract awarded or to be awarded by the City.

**SPC-3 RIGHT TO AUDIT RECORDS**

- 1) **Audit of Cost or Pricing Data:** The City may, at reasonable times and places audit the books, documents, papers and records of any contractor who has submitted cost or pricing data to the extent that such books, documents, papers and records are pertinent to such cost or pricing data. Any person who receives a contract, change order or contract modifications for which cost or pricing data is required, shall maintain such books, documents, papers and records that pertinent to such costs or pricing data for five (5) years from the date of the final payment under the contract.
- 2) **Contract Audit:** The City shall be entitled to audit the books, documents, papers and records of a contractor or a subcontractor at any tier under any negotiated contract or subcontract other than a firm fixed-price contract to the extent that such books, documents, papers and records are pertinent to the performance of such contract or subcontract. Such books, documents, papers and records shall be maintained by the contractor for a period of five (5) years from the date of final payment under the prime contract and by the subcontractor for a period of five (5) years from the date of final payment under the subcontract.
- 3) **Contractor Records:** If a contract is being funded in whole or in part by assistance from a federal agency, then the contract shall include provisions:
  - A) Requiring the contractor and subcontractor at any tier to maintain for five (5) years from the date of final payment under the contract all books, documents, papers and records pertinent to the contract; and

- B) Requiring the contractor and subcontractor at any tier to provide to the City, the federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives access to such books, documents, papers and records for the purposes of examining, Auditing and copying them.

#### **SPC-4 LOCAL VENDOR PREFERENCE**

A local vendor preference shall be used in accordance with section 2-117(b) of the City of Lake Worth Code of Ordinances. In the event the lowest responsive, responsible bidder or the highest ranked responsive, responsible proposer in the procurement of goods, services or construction is a non-LOCAL business, then all bids and or proposals from responsive, responsible LOCAL businesses to the same solicitation shall be adjusted by five (5) percent, solely for the purpose of determining bid/contract award. The bid price of LOCAL bidders will be adjusted downward by five (5) percent for purposes of ranking of bidders.

In no event, shall the application of this adjustment to a responsive quote or bid change the actual bid amount. Further, it will not cause the City to pay more than \$15,000 above the amount bid by that non-local vendor, which would have been recommended for award if the local vendor preference had not been applied.

If the application of the five-percent local vendor preference causes the *evaluated local vendor price* to be less than the actual low-bid price, but the actual bid price of the local vendor is more than \$15,000 higher than the actual low-bid price of a non-local vendor, then the non-local vendor submitting the actual low-bid, shall be viewed as the low-bidder, and be recommended for award, unless for reasons other than price, the bid is not found to be responsive and/or responsible.

The determination as to whether a bidder or proposer is a local or non-local business shall be made by the Purchasing Division, after confirming the vendor has a valid business tax receipt and certificate of occupancy, as reflected within the Business Master File of the city's ERP system. The bidder or proposer does not have to be a current vendor to the City (City as a customer) at the time of bidding/proposing, but must have been issued a business tax receipt applicable to the goods/services/ construction being requested, PRIOR to the due date/time for bids/proposals. Prior to making an award through the application of the local vendor preference, city staff may require a bidder or proposer to provide additional information at any time prior to the award.

A *LOCAL business*, for the purposes of the application of a local vendor preference, means a bidder or proposer which has a permanent, physical place of business within the city limits, and a valid business tax receipt applicable to the required goods, services, or construction items being procured. Post office boxes or locations at a postal service center are not verifiable and shall not be used for the purpose of establishing said physical address. If the business is a joint venture/partnership, it is sufficient for qualification as a LOCAL business if at least one party of the joint venture/partnership meets the test set forth in this Section.

*Non-LOCAL business* means a bidder or proposer which is not a LOCAL business as defined herein.

*Permanent place of business* means headquarters which are located within the city limits or a permanent office or other site located within the city limits from which a bidder or proposer will produce a substantial portion of the goods or perform a substantial portion of the services to be purchased. A post office box or location at a postal service center shall not constitute a permanent place of business.

#### **SPC-5 CONTRACTOR'S START OF WORK & CHANGE OF SCOPE**

- 1) The Contractor shall not perform work without a Purchase Order.
- 2) The Contractor shall not work out of scope without a signed, issued work directive change or change order to the purchase order, authorizing the additional work and any change to the period of performance (Construction Contract Time).

#### **SPC-6 APPROPRIATION OF FUNDS**

This project is subject to approval and appropriation of funds by the City of Lake Worth Commission.

#### **SPC-7 BUILDING PERMIT FEE**

A building permit fee equal to 3-percent of the appropriate items of accepted bid shall be included in the project costs. See Supplemental Conditions paragraph SC-7.08 for further details.

#### **SPC-8 CONE OF SILENCE**

Communications shall be in accordance with the City of Lake Worth Municipal Code, Article XIV Purchasing, Section 2-112(k) Cone of Silence.

00840  
**LISTING OF THE DUTIES, RESPONSIBILITIES AND  
LIMITATIONS OF AUTHORITY OF THE  
RESIDENT PROJECT REPRESENTATIVE**

ENGINEER may furnish a Resident Project Representative (RPR), assistants and other field staff to assist ENGINEER in observing performance of the Work of the Contractor. RPR may only be part time on site, and CONTRACTOR shall coordinate with RPR as required in the Contract Documents.

Through on-site observations of the Work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the Work; but, the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

**A. GENERAL**

RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

**B. DUTIES AND RESPONSIBILITIES OF RPR**

1. **SCHEDULES:** Review the progress schedule, schedule of Shop Drawing 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 superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.
  - b. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.
4. **SHOP DRAWINGS AND SAMPLES:**
  - a. Record date of receipt of Shop Drawings and samples.
  - b. Receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.

- c. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.
5. REVIEW OF WORK, REJECTION OF DEFECTIVE WORK, INSPECTIONS AND TESTS:
  - a. Conduct on-site observations of the 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 RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to 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 Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
  - c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
  - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
6. 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.
7. MODIFICATIONS: Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.
8. RECORDS:
  - a. Maintain at the job site or ENGINEER's office files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
  - b. Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.
9. REPORTS:
  - a. Furnish 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. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
  - c. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from CONTRACTOR and recommend to ENGINEER Change Orders, Work Directive Changes, and Field Orders.
  - d. Report immediately to ENGINEER and OWNER upon the occurrence of any accident witnessed by RPR or that was otherwise made known to RPR.
10. 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.

11. CERTIFICATES, MAINTENANCE AND OPERATION MANUALS: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the Work.

12. COMPLETION:

- a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
- b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
- c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

### C. LIMITATIONS OF AUTHORITY

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawing or sample submittals from anyone other than Contractor.
7. Shall not authorize OWNER to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

END OF SECTION

**00860**  
**LIST OF DRAWINGS**

The Drawings which form a part of the Contract Documents and show the Work to be performed are as follows:

<u>Drawing Title</u>	<u>Drawing Number</u>	<u>No. of Sheets</u>	<u>Dated</u>
Water Treatment Plant Chlorination System Improvements	44-43-28-305	8	July 2016

**SPECIFICATIONS  
TABLE OF CONTENTS**

SECTION NUMBER	TITLE	NO. OF PAGES
<u>DIVISION 1 - GENERAL REQUIREMENTS</u>		
01000	General Requirements .....	4
01025	Measurement and Payment .....	2
01720	Record Documents .....	2
<u>DIVISION 2 - SITE WORK</u>		
02108	Video-Recording of Existing Conditions.....	2
02628	PVC Pipe (Scheduled) .....	2
02675	Disinfecting Water Mains and Storage Tanks .....	2
<u>DIVISION 3 - CONCRETE</u>		
03001	Concrete .....	7
<u>DIVISION 9 - FINISHES</u>		
09900	Painting .....	10
<u>DIVISION 11 - EQUIPMENT</u>		
11260	Chemical Metering Pump Feed Systems .....	10
<u>DIVISION 13 - SPECIAL CONSTRUCTION</u>		
13000	Plant Scada Central System Upgrade .....	8
<u>DIVISION 16 - ELECTRICAL</u>		
16050	Electrical General Provisions.....	5
16110	Raceways .....	3
16120	Wires and Cables .....	2

## SECTION 01000

### GENERAL REQUIREMENTS

#### 1.0 PROJECT LOCATION

Lake Worth Water Treatment Plant at 301 College Street, Lake Worth, Florida

#### 2.0 SCOPE OF WORK

- A. The Work to be performed by the Contractor includes permitting, inspecting, furnishing all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to modify, construct, complete, deliver and place in operation the subject Project as shown on the Drawings and/or as herein described as specified. All Work to be in accordance with the Contract Documents.

#### 3.0 REFERENCE POINTS

- A. Horizontal and vertical control have been provided in the Drawings. All construction staking to be provided by the Contractor.

#### 4.0 GRADES, DIMENSIONS, AND ELEVATIONS

- A. Written dimensions have preference over scaled dimensions. All elevations are based on the 1929 National Geodetic Vertical Datum (N.G.V.D.).

#### 5.0 EXISTING STRUCTURES AND UTILITIES

- A. All known utilities have been shown on the Drawings according to the best information available. It is the Contractor's responsibility to contact all owners of structures or utilities above ground, on the surface, or below the ground, within the Project area so that said owners may stake or otherwise mark or protect their facilities. The Contractor must provide facilities and be responsible for the protection of all structures, buildings and utilities, underground, on the surface, or above ground against trenching, dewatering, or any other activity connected with the Work throughout the entire Contract Time.
- B. When structures and utilities have been properly shown or marked and are disturbed or damaged in the execution of the Work, they must be repaired immediately in conformance with best standard practice and the approval of the owner of the damaged utility or structure. In the case of structures and utilities which have not been properly shown or located as outlined above and are disturbed or damaged in the prosecution of the Work, take whatever steps are necessary for safety and notify the affected utility owner and avoid any actions which might cause further damage to the structure or utility.
- C. Should the Work require repairs, changes or modifications of the Owner's utilities as well as other utilities, it is the responsibility of the Contractor to provide for the maintenance of continuous water, sewage, electric, telephone and other utility services to all present customers of such utilities, unless approval in writing is secured from the applicable utility company or Owner for interruption of such service.
- D. Contractor is responsible for verifying all vertical and horizontal locations of all existing utilities and structures, whether shown on the drawings or not, to verify any potential conflicts prior to ordering any materials.

## 6.0 QUALITY CONTROL

### A. Testing Laboratory Services:

All tests and analyses, which are called for in the Specifications and/or Drawings to be performed by an Independent Testing Laboratory, will be at the Owner's expense unless otherwise specified, provided the tests and analyses determine that the material(s) and/or Work meets the requirements as specified. All such tests that fail to meet the Project requirements are to be paid by the Contractor. Contractor shall be responsible for scheduling test lab visits in a manner to limit costs of stand-by time and non-tests assessed because of minimum per visit charges. Such excessive costs will be paid by Contractor.

### B. Field Observations:

Provide twenty-four (24) hour notification to the Engineer for all specified field observations, unless otherwise noted.

## 7.0 MOBILIZATION

- A. Consists of the preparatory Work and operations in mobilizing for beginning Work on the Project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the Project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, sanitary and other facilities, as required by these Specifications, and State and local laws and regulations.

The costs of bonds, insurance and any other pre-construction expenses necessary for the start of the Work, excluding the cost of construction materials, is to be included in Mobilization.

- B. When the Bid Form includes a separate pay item for Mobilization, partial payments will be made in accordance with the following:

<u>Percent of Contract Price Less Mobilization Earned</u>	<u>Allowable Percent of the Lump Sum Price of Mobilization</u>
5	25
10	50
25	75
50	100

The standard retainage will be applied to these payments. Previous payments for Mobilization and unpaid amounts on Allowances will not be considered in calculating the percent of the Contract Price earned. Payments will be made in stepped increments as shown and will not be interpolated between steps.

- C. When the Bid Form does not include a separate item for Mobilization, all Work and incidental costs specified as being covered under Mobilization is to be included for payment under the several scheduled items on the Bid Form, and no separate payment will be made therefor.

## 8.0 PLACING EQUIPMENT INTO SERVICE

- A. Do not operate or place into service or energize, electrical and mechanical equipment until approved by the Owner and Engineer. Such approval may be granted only after all interested parties have been duly notified, have given approval for placing the equipment into service, and all interested parties are present or waived their right to be present. Contractor shall provide, in writing, seventy-two (72) hour notification for all item and equipment start-ups.

## 9.0 SALVAGEABLE MATERIAL

- A. All salvageable material and/or equipment removed as a part of the Work for which specific use, relocation or other disposal is not specifically noted on the Drawings or otherwise specified, must be disposed of by the Contractor. All material and/or equipment not in salvageable condition as determined by the Engineer, must be disposed of by the Contractor. The actual storage site for salvageable material will be designated by the Owner.

## 10.0 DISPOSAL OF EXCAVATED MATERIALS AND DEBRIS

- A. All excess excavated material and debris not required for backfill (unless otherwise noted), broken pipe, sidewalks, curbs and other concrete items, together with all roots, boards and other debris are to be disposed of by the Contractor at an appropriate legal site.

## 11.0 TEMPORARY CONTROLS AND FACILITIES

- A. The Contractor is responsible for compliance with all NPDES regulations including submitting a Pollution Prevention Plan, submitting a Notice of Intent, conducting maintenance and inspection of controls, erosion and sediment controls and submitting a Notice of Termination.
- B. As part of the Work, the Contractor shall be responsible for applying for, obtaining and complying with all required dewatering permits. Contractor shall notify South Florida Water Management District (SFWMD) prior to all dewatering activities. All dewatering shall meet SFWMD requirements.
- C. Contractor shall install all turbidity control devices required by SFWMD, if necessary. Contractor shall notify SFWMD for inspection of turbidity control devices prior to any construction activities.

## 12.0 CONSTRUCTION SCHEDULE MEETINGS

- A. Contractor shall submit a construction schedule in accordance with the General Conditions. Contractor's Project Manager and a representative of subcontractors performing work at the time of the meeting shall attend a coordination/progress meeting a minimum of once a month, as designated by the Owner, at the Owner's office during the progress of the Work. Contractor shall submit an updated construction schedule to the Engineer at each coordination/progress meeting.

## 13.0 MISCELLANEOUS

- A. All bolts, nuts, washers, etc. and miscellaneous hardware shall be 316 stainless steel, unless otherwise indicated.

## 14.0 CONTRACTOR'S SUBMITTALS

- A. Contractor shall be required to submit, with a letter of transmittal to the Engineer, a minimum of ten (6) copies of each checked and approved shop drawing, mix report, laboratory results, etc., where required in the specifications, Drawings or as appropriate, in lieu of the five (5) copies specified in Article 6 of the General Conditions or as specified elsewhere in these Specifications. Of the ten copies submitted, two copies will be returned to the Contractor for the Contractor's use. If the Contractor requires any additional approved copies, the Contractor shall submit additional copies at the time of initial submission. Allow a minimum of two weeks from date of receipt for review by the Engineer. Review of shop drawings will be general and will not relieve the Contractor from any responsibility.
- A. Contractor shall be required to submit, with a letter of transmittal to the Engineer, for review and approval, four (4) hard copies and four (4) copies in CD format of each Operation and Maintenance Manual for all equipment, regardless of the number of submittals specified elsewhere in these Specifications.

## 15.0 CONSTRUCTION SEQUENCE

- A. In addition to requirements of the Specifications and Drawings, the Contractor shall submit Construction Schedule and Project Phasing and Temporary Facilities Plan to Engineer which will include coordination of the various elements of the Work.
- B. The Water Treatment Plant must remain in continuous operation. Only selected portions may be taken out of service at any given time. The Contractor shall include these events in his schedule and phasing plan. The Contractor must coordinate any outage in advance with the Engineer and Owner's operational staff.

## 16.0 PROTECTION AND RESTORATION OF SURVEY MONUMENTS

- C. The Contractor shall be responsible for protecting and restoring all land and property corners, such as section corners, ¼ section corners, property corners or block control points, and for maintaining all horizontal and vertical control points. All surveying work shall be the responsibility of the Contractor and shall be performed under the supervision of a Florida Professional Surveyor and Mapper. Survey points that will be destroyed during construction shall be properly referenced and replaced at the Contractor's expense with permanent monuments approved by the ENGINEER.

## 17.0 GENERAL ALLOWANCE

- A. General Allowance: The work to be paid under this item may cover unforeseen and unanticipated costs associated with the work. Use of the General Allowance requires written authorization by the Owner prior to performing any work under this item. Any unused portion of the General Allowance will be credited to the Owner at the time of final payment.
- B. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances or any credit due for unused allowance balances, and the Contract Price shall be correspondingly adjusted.

## 18.0 ORDER OF PRECEDENCE

- A. The Order of Precedence shall follow the order as set forth in Article B Contract Documents, page 00500-4 of the Agreement.
- B. In the case of a discrepancy between any of the Contract Documents, the most restrictive requirement shall govern unless otherwise determined by the Engineer.
- C. In the event that a conflict cannot be resolved by the methods listed in paragraph A or B above, the Engineer shall review the dispute and issue a clarification to resolve the issue. The Engineer's decision shall be binding on all parties. In general the Engineer will consider the overall intent of the project as presented in the contract documents, and render a decision consistent with the overall project objectives.

## 19.0 APPROVED PRODUCTS LIST

- A. All materials furnished shall be the manufacture and model as included in the City of Lake Worth Water Utilities Department Approved Products List unless otherwise noted.

## 20.0 POLICIES AND PROCEDURES MANUAL

- A. All work undertaken under this contract shall be completed in accordance with the Water Utilities Department Policies and Procedures Manual.

END OF SECTION

## SECTION 01025

### MEASUREMENT AND PAYMENT

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Measurement and payment criteria applicable to the Work performed under a Unit Price payment method.

##### 1.02 AUTHORITY

- A. Measurement methods delineated in the individual Specification sections are intended to complement the criteria of this Section. In the event of conflict, the requirements of the individual Specification section will govern.
- B. The Engineer will take all measurements and compute quantities unless noted otherwise herein.
- C. Contractor to assist Engineer by providing necessary equipment, workers, and survey personnel as required.

##### 1.03 UNIT QUANTITIES SPECIFIED

- A. Quantities and measurements indicated in the Bid Form are for bidding and Contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer will determine payment. Waste will not be included in the measurements or quantities.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the Contract Unit Price.

##### 1.04 VOLUME MEASUREMENT

- A. Measured by cubic dimension using mean length, width, and height or thickness.
- B. For excavation of lakes, canals, ditches, etc., material will be measured in its original position by a Professional Land Surveyor who is licensed in the State of Florida. The Surveyor will be retained by the Contractor. Quantities will be based on before and after cross sections determined by the Surveyor. Payment will not be made for excavation beyond the lines shown on the Drawings.

##### 1.05 AREA MEASUREMENT

- A. Measured by square dimension using mean length and width or radius.

##### 1.06 LINEAR MEASUREMENT

- A. Measured by linear dimension, at the item centerline or mean chord.
- B. For pipelines, the length will be measured from center of structure or fitting to center of structure or fitting.

##### 1.07 PAYMENT

- A. Payment Includes: Full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

- B. Final payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the Engineer multiplied by the unit price for Work which is incorporated in or made necessary by the Work.
- C. Payment for lump sum items will be made on the basis of percentage complete as approved by the Engineer.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01720

### RECORD DOCUMENTS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. On site maintenance of Record Documents.
- B. Required record information.

##### 1.02 MAINTENANCE

- A. Maintain on site, one set of the following Record Documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Shop Drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. In the interest of timely detection of non-conforming Work, all Record Drawing information must be furnished to the Engineer prior to submitting for payment of that particular item. No progress payment application requests will be approved by the Engineer without satisfactory record drawings for that particular items(s).
- E. Record Documents must be available to Engineer for examination at any time during the progress of the Work.
- F. Submit completed Record Documents upon completion of the Work and prior to application for final payment.
- G. Show record information in bold or boxed out to stand out from rest of Drawing.
- H. Record actual revision dates of the Work.

##### 1.03 REQUIRED RECORD DRAWING INFORMATION

- A. All elevations and horizontal locations shown on the Drawings must be verified. Verification or deviation must be clearly indicated on the Drawings.
- B. Water
  - 1. Distance from the reference points shown on the Drawings.
  - 2. Location of water services, valves, fittings, hydrants, blowoff points, etc. by stationing and offsetting from reference points shown on the Drawings.
  - 3. Details of any design changes.
  - 4. Location of utilities and miscellaneous structures encountered which are different from or not shown on the Drawings.
  - 5. Changes in pipe material.

C. Wall Sleeves

1. Horizontal location and size of wall sleeve.

D. Structural

1. Obtain horizontal and vertical locations and elevations for all structural components, including but not limited to slabs, building and building features, etc.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 CONTRACTOR'S SURVEYOR RESPONSIBILITIES

- A. Engineer will provide the Contractor with electronic files of the construction drawings. One copy of the electronic files will be provided on CD/DVD media in AutoDesk Civil 3D 2016 format. No warranty of the usability of the electronic files provided is expressed or implied. The cost of any required conversion or duplication of the electronic files from the format specified herein shall be the responsibility of the Contractor.
- B. The Owner and Engineer will advise the Contractor at the pre-construction conference of the acceptable method and file format by which the interim and final Record Drawing information will be provided to the Owner and/or Engineer.
- C. Record Drawing information shall be prepared electronically. The Record Drawing information shall be placed on a separate layer so that it is isolated from all other layers in the drawing file. This layer must be prepared in such a manner that it can be exported as a separate AutoCad file and subsequently inserted into an AutoCad drawing containing the approved design information. The AutoCad file shall be accompanied by an Adobe Acrobat portable document format (pdf) file of the Record Drawings.
- D. Place information in the Drawings in a manner that indicates which elevations and dimensions have been checked. This is to be done by crossing through the design elevation or dimension and placing the Record information next to it. If an elevation or dimension has not changed, the same procedures should be followed to confirm that it has been checked. Add new information in a manner to indicate that it is Record information and not design information.
- E. Each Record Drawing sheet must include the surveyor's name, company, address, license number, and date of field survey.
- F. Signed and sealed Record Drawings shall be submitted at the conclusion of the Project.

3.02 CONTRACTOR RESPONSIBILITIES

- A. Record document information not required to be obtained by a Professional Surveyor and Mapper must be obtained by the Contractor.
- B. Mark Record information on one clean set of prints of the Contract Documents.
- C. Each Drawing must be stamped indicating that the information has been reviewed by the Contractor.
- D. Contractor's Surveyor will transfer Contractor supplied information to the record drawing.

END OF SECTION

## SECTION 02108

### VIDEO-RECORDING OF EXISTING CONDITIONS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Video-recording the pre-construction conditions of the surface features within the construction conditions.

##### 1.02 SUBMITTALS

- A. Pre Construction: Submit two completed DVD media that is playable on standard DVD players to Engineer at least seven calendar days prior to commencing construction and delivery of any materials and/or equipment.
- B. Post Construction: Submit two completed DVD media that is playable on standard DVD players to Engineer for review prior to substantial completion.

##### 1.03 QUALITY ASSURANCE

- A. Video-recording must be done by a responsible commercial firm known to be skilled and regularly engaged in the business of pre-construction video documentation.
- B. A Contractor walk through with a handheld camera will not comply with these specifications.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. DVD Media: Standard name-brand high quality write-once media. New, not previously used.

#### PART 3 EXECUTION

##### 3.01 PRE CONSTRUCTION VIDEO-RECORDING

- A. Video-recording shall be performed and submitted at least seven calendar days prior to the commencement of construction and delivery of any materials and/or equipment. Upon review by the Engineer, and prior to commencement of construction and delivery of any materials and/or equipment, additional video-recording of any portions of the construction areas that are not adequately documented on the initial video-tapes may be required.
- B. Video-record the pre-construction conditions of the surface features within the construction area.
- C. The video-record will serve as a record of the pre-construction conditions for disputes arising from restoration, and should, therefore, be taken within the construction area in sufficient detail as necessary to clearly depict pre-construction conditions.
- D. Indicate the date and time (hour, minutes and seconds) on which the video-records were recorded.
- E. Video-records shall record video with simultaneous audio to assist viewer orientation with any needed identification, differentiation, clarification, or objective description of the features being shown with audio recording of commentary by the camera operator. The audio recording shall be free of any conversations between the camera operator and other production technicians.
- F. Camera Height and Stability: Do not exceed 10 feet vertical distance between camera lens and the ground when conventional wheeled vehicles are used as conveyances for the recording system.

- G. Camera Control: Control camera pan, tilt, zoom-in and zoom-out rates such that recorded objects will be clearly viewed during video tape playback. Control or adjust camera and recording system controls such as lens focus, aperture, light, and white balance to maximize picture quality.
- H. Viewer Orientation Techniques: Use existing landmarks including but not limited to, all visible house and business addresses, to maintain viewer orientation.
- I. Video Record Log: Provide a written log of each video record's contents including but not limited to, the names of the streets or easements, coverage beginning and ending, directions of coverage, and the date upon which the recording was made.
- J. All video-records and DVD's become the property of the Owner.

### 3.02 POST CONSTRUCTION VIDEO RECORDING

- A. Video-record the post-construction conditions.

END OF SECTION

## SECTION 02628

### PVC PIPE (SCHEDULED)

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. PVC pipe with a 'scheduled' wall thickness for drainage, water distribution, wastewater collection, and air line systems.

##### 1.02 PAYMENT

- A. Payment for PVC pipe, unless otherwise noted, shall be made at the applicable unit prices in the Bid Form and shall be full compensation for all Work involved in the installation.

##### 1.03 REFERENCES

- A. ASTM D1784-81 - Rigid PVC Compounds and Chlorinated PVC Compounds.
- B. ASTM D1785-83 - Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40,80, and 120.
- C. ASTM D2464-76 - Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
- D. ASTM D2466-78 - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
- E. ASTM D2467-76 - Socket-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
- F. ASTM D2564-80 - Solvent Cements for PVC Plastic Pipe and Fittings.
- G. ASTM D2855-83 - Making Solvent Cemented Joints with Poly Vinyl Chloride Pipe and Fittings.
- H. ASTM F439-09-Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
- I. ASTM F441/F441M-09-Chlorinated Poly (Vinyl Chloride) CPVC) Plastic Pipe Schedules 40 and 80.

##### 1.04 QUALITY ASSURANCE

- A. Pipe shall be marked with the following information: Nominal pipe size and schedule, ASTM designation, pressure rating, manufacturer's name or trademark, and pipe intended for the transport of potable water shall also include the seal or mark of the laboratory making the evaluation for this purpose.

##### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Pipe shall be delivered to the site in such a manner as to provide adequate protection for the pipe.
- B. Do not store PVC pipe in a place where it can be exposed to ultraviolet sunlight.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Pipe: ASTM D1785 or ASTM F441.
- B. Fittings: ASTM D2464, ASTM D2466, ASTM D2467, or ASTM F439.
- C. Solvent Cement: ASTM D2564.

- D. All PVC Pipe shall be Schedule 80 unless otherwise shown on Construction Drawings.

### PART 3 EXECUTION

#### 3.01 INSTALLATION

- A. The interior of the pipe and fittings shall be kept thoroughly clean.
- B. Any pipe and/or fitting found defective shall be removed immediately and replaced with sound pipe.
- C. All PVC pipe and fittings shall be installed as detailed on the Drawings.
- D. PVC pipe and fittings, unless otherwise noted, shall be joined by solvent weld joints. Solvent weld joints and solvent shall be as recommended by the manufacturer of the pipe.

#### 3.02 TESTING

- A. PVC piping systems to be used for water or water solutions shall be pressure tested by the Contractor by filling the lines with potable water and subjecting the line to a gauge pressure of 150 p.s.i. for at least two (2) consecutive hours.
- B. PVC piping systems to be used for air lines shall be pressure tested by the Contractor by filling the lines with clean air and subjecting the lines to a gauge pressure of 75 p.s.i. for at least two (2) consecutive hours.
- C. There shall be no pressure drop in the PVC lines during the pressure tests.
- D. Contractor shall furnish his own sources of potable water and clean air for testing the lines.

#### 3.03 FIELD OBSERVATIONS

- A. PVC pipe systems shall be observed at the option of the Engineer prior to covering up and Engineer shall be present during pressure tests.

END OF SECTION

## SECTION 02675

### DISINFECTING WATER MAINS AND STORAGE TANKS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Cleaning, disinfecting, and bacteriological testing of water mains.
- B. Cleaning, disinfecting and bacteriological testing of water storage tanks (clearwells).

##### 1.02 REFERENCES

- A. AWWA C651-05 - Disinfecting Water Mains.
- B. AWWA C652-02 - Disinfecting Water Storage Facilities.
- C. AWWA B300 - Hypochlorites
- D. AWWA B301 – Liquid Chlorine

##### 1.03 SUBMITTALS

- A. Bacteriological test results from a Florida certified laboratory.

##### 1.04 SEQUENCING AND SCHEDULING FOR TANKS

- A. The interior wet coating shall be properly cured.
- B. The interior wet coating shall be washed with potable water.
- C. Contractor shall flush and disinfect the tank and connecting piping.
- D. The Contractor shall take and send in the samples to the laboratory for testing. The Contractor shall pay for the testing of the initial set of samples. The Contractor shall pay for all subsequent samples and testing, if required.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Materials for disinfection of the tank shall be as listed in Section 4: Forms of Chlorine for Disinfection of AWWA C652-02.
- B. Materials for disinfection of the distribution system shall be as listed in Section 4: Forms of Chlorine for Disinfection of AWWA C651-05.

#### PART 3 EXECUTION

##### 3.01 CLEANING AND DISINFECTION

- A. All potable water mains, fittings, and appurtenances must be thoroughly flushed and cleaned with potable water and disinfected in accordance with AWWA C651-05.
- B. Disinfection shall be done after cleaning and pressure or other required testing.

### 3.02 DISINFECTION OF THE CONNECTING PIPING

- A. It is the Contractor's responsibility to flush and disinfect the connecting piping until satisfactory water samples are reported from the Florida certified laboratory. Acceptable methods are the tablet or slug methods as described in AWWA C651-05. The taking and testing of the samples are the responsibility of the Contractor.

### 3.03 WASHING TANK INTERIOR WET SURFACES

- A. After proper curing of the coating on the interior wet surfaces and prior to disinfecting, the Contractor shall wash the tank interior wet surfaces with potable water. The Contractor shall supply an adequate flow of water (20 gpm minimum) with sufficient pressure (60 psi minimum at the nozzle) to wash thoroughly all the interior surfaces, including those surfaces above the high water level. All residue shall be removed from the tank and inlet/outlet pipe.

### 3.04 DISINFECTION OF THE TANK

- A. Disinfection: It is the Contractor's responsibility to flush and disinfect the tank and connecting piping until two or more successive samples taken on two consecutive days show that the samples are satisfactory as reported from the Florida state certified laboratory. Method 2 (Section 4.3.2) of AWWA C652-02 shall be used for the disinfection procedure. Samples shall be taken and tested by the Contractor.

### 3.05 BACTERIOLOGICAL TESTING FOR STORAGE TANK

- A. The Contractor shall take and send in the samples to a State of Florida certified laboratory. The stored tank water shall comply with current State and USEPA standards for organic, inorganic, and biological contaminants as influenced by the operations of the Contractor. One tank of water for the disinfection shall be furnished by the Owner at no charge to the Contractor. Additional water shall be furnished at current municipal water rates charged by the Owner and shall be paid for by the Contractor.

### 3.06 BACTERIOLOGICAL TESTING FOR WATERMAINS

- A. Install sampling taps at the locations shown on the Drawings.
- B. Fire hydrants are not to be used in the collection of samples unless approved as an exception by the Engineer.
- C. Leave sampling taps running so that samples may be collected by an independent testing laboratory and until satisfactory results are obtained.
- D. Two consecutive daily water samples are to be analyzed.
- E. Satisfactory samples show the absence of coliform organisms and the presence of a chlorine residual.
- F. Should samples be unsatisfactory, Contractor must reflush, re-chlorinate the pipelines, and set up additional sampling with the independent testing laboratory until satisfactory results are obtained.

### 3.07 FINAL FLUSHING AFTER DISINFECTION

- A. Water pipes shall be flushed until the chlorine residual in the flushing water is no greater than that of the source water.
- B. Disposal of water with high chlorine residuals must be carefully implemented so as to not harm the environment or persons. If necessary a neutralizing chemical shall be used.

END OF SECTION

## SECTION 03001

### CONCRETE

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Formwork.
- B. Concrete reinforcement and accessories.
- C. Cast-in-place concrete.
- D. Pre-cast concrete.

##### 1.02 REFERENCES

- A. ACI 301-96 - Specifications for Structural Concrete.
- B. ACI 318-99 - Building Code Requirements for Structural Concrete.
- C. ACI SP-4 (95) – Formwork for Concrete.
- D. ASTM A185-97 – Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
- E. ASTM A615-01 - Deformed and Plain Billet Steel for Concrete Reinforcement.
- F. ASTM A775-01 – Epoxy - Coated Reinforcing Steel Bars.
- G. ASTM C31-00 - Making and Curing Concrete Test Specimens in the Field.
- H. ASTM C33-01 - Concrete Aggregates.
- I. ASTM C39-01 - Compressive Strength of Cylindrical Concrete Specimens.
- J. ASTM C42-99 - Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- K. ASTM C94-00 - Ready-Mixed Concrete.
- L. ASTM C143-00 - Slump of Hydraulic Cement Concrete.
- M. ASTM C150-00 - Portland Cement.
- N. ASTM C192-90 - Making and Curing Concrete Test Specimens in the Laboratory.
- O. ASTM C260-01 - Air-Entraining Admixtures for Concrete.
- P. ASTM C309-98 - Liquid Membrane - Forming Compounds for Curing Concrete.
- Q. ASTM D1751-99 - Preformed Expansion Joint Filler for Concrete Paving and Structural Construction.

##### 1.03 SUBMITTALS

- A. Four copies of the test mix report showing the proportions of cement, aggregate, fine aggregate, water and admixtures.
- B. Shop Drawings of pre-cast structures for review prior to fabrication.

## PART 2 PRODUCTS

### 2.01 FORM MATERIALS

- A. Conform to ACI 347.

### 2.02 REINFORCING STEEL

- A. Reinforcing Bars: ASTM A615, Grade 60, new deformed billet steel.
- B. Welded Wire Fabric: Plain type, ASTM A185.
- C. Stirrups and Ties: ASTM A615, Grade 40 or Grade 60.
- D. Bar Supports and Spacers: Steel wire with upturned legs. Mortar cubes.
- E. Epoxy - Coated Reinforcing Bars: ASTM A775, Grade 60, new deformed billet steel.

### 2.03 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I. Type II cement for wastewater structures.
- B. Fine and Coarse Aggregates: ASTM C33.

Nominal maximum size of coarse aggregate not larger than:

- 1. The narrowest dimension between sides of forms, nor
  - 2. 1/3 the depth of slabs, nor
  - 3. 3/4 the minimum clear spacing between individual reinforcing bars or wires, bundles of bars, or ducts.
  - 4. 4 inches.
- C. Water: Clean, fresh, and free from injurious amounts of oils, acids, alkalis, salts, organic materials, or other substances that may be deleterious to concrete or reinforcement.
  - D. Air Entrainment Admixtures: ASTM C260. 'Darex' by the W. R. Grace Company or approved equal.
  - E. Curing Compound: ASTM C309, Type 1 or Type 1-D, Class A.

### 2.04 CONCRETE MIX

- A. Mix concrete in accordance with ASTM C94.
- B. Compressive Strength: 3000 psi minimum at 28 days for cast-in-place concrete and 4000 psi minimum at 28 days for pre-cast concrete (unless otherwise noted on Drawings).
- C. Slump: 5 inches maximum (Vertical Pours)  
3 inches maximum (Horizontal Pours)  
2 inches minimum (Unless noted otherwise i.e. tremie, curb machine)
- D. Mixing water not to exceed 6 gallons per sack of Portland Cement. This includes water entering the batches as surface moisture on the aggregates, which must be deducted from the specified 6 gallons to determine the amount of mixing water for each batch.
- E. Contain not less than 5 sacks of cement per cubic yard of concrete for 3000 psi concrete and not less than 6 sacks of cement per cubic yard of concrete for 4000 psi concrete.

- F. Air-Entraining admixture to produce 5 percent (+/- 1.5%) entrained air.

### PART 3 EXECUTION

#### 3.01 FORMWORK ERECTION

- A. Conforms to the shapes, lines, and dimensions of the members as called for on the Drawings.
- B. Provide bracing to ensure stability of formwork.
- C. Design and construct forms, bracing, and supports to withstand the pressure of freshly placed concrete without bow or deflection.
- D. Hand trim sides and bottom of earth forms; remove loose dirt.
- E. Coordinate Work on Drawings in forming and setting openings, recesses, chases, sleeves, bolts, anchors, and other inserts.
- F. Substantial and sufficiently tight to prevent leakage of mortar. Check forms prior to placing concrete and tighten as required to produce flush surfaces.
- G. Tie metal remaining in the concrete to be at least 3 inches back of the concrete face. Plug holes left by the tie ends with grout.
- H. Chamfer corners of beams, columns, walls and exposed edges or corners of concrete with 3/4 inch by 3/4 inch wood chamfer strips unless otherwise shown on Drawings.
- I. Clean forms and apply form release agents or wet forms prior to concrete placement.
- J. Remove forms in such a manner as to insure the complete safety of the structure. Where the structure as a whole is supported on shores, the removable floor forms, beams and girder sides, columns and similar vertical forms may be removed only after concrete has reached 2/3 of its design strength by test and is sufficiently hard not to be injured during form removal. In no case should supporting forms or shoring be removed until the members have acquired sufficient strength to support their weight and the load safely thereon.

#### 3.02 REINFORCEMENT

- A. Before placing concrete, clean reinforcement of foreign particles or coatings.
- B. Place, support, and secure reinforcement against displacement.
- C. Lap welded wire mesh at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.
- D. Avoid splices at points of maximum stress. Provide sufficient lap to transfer the stress between bars by bond and shear.
- E. Make bends for stirrups and ties on bars 5/8 inches in diameter and less, around a pin having a diameter not less than four times the thickness of the bar. Make bends for other bars around a pin having a diameter not less than six times the minimum thickness of the bar, except that for bars larger than one inch but less than 1-3/4 inches, the pin can not be less than eight times the minimum thickness of the bar. Bend all bars cold.
- F. Splices and Offsets in Reinforcement: In slabs, beams, and girders, avoid splices of reinforcement at points of maximum stress. Provide sufficient lap to transfer the stress between bars by bond and shear and meet the requirements of ACI 318.

Where changes in the cross section of a column occur, offset the longitudinal bars in a region where lateral support is afforded. Where offset, the slope of the inclined portion should not be more than one in six, and in the case of tied columns, space the ties not more than 3 inches on center for a distance of one foot below the actual point of offset.

- G. Protection of Reinforcement: Protect the metal reinforcement by the thickness of concrete indicated on the Drawings. Where not otherwise shown, the thickness of concrete over the reinforcement should be as follows:

Where concrete is deposited against ground without the use of forms, not less than 3 inches for beams and slabs.

Where concrete is exposed to the weather or exposed to the ground but placed in forms, not less than 2 inches for bars more than 5/8 inch in diameter and 1-1/2 inches for bars 5/8 inch or less in diameter.

In slabs and walls not exposed to the ground or to the weather, not less than 1-1/2 inches. In beams, girders and columns not exposed to the ground or to the weather, not less than 1-1/2 inches.

In all cases, the thickness of concrete over the reinforcement must be at least 1-1/2 inches.

- H. Protect reinforcement bars, intended for bonding with future extensions, with approved adequate covering.

### 3.03 JOINTS

- A. Expansion and Contraction Joints: Provide expansion joints when slabs on grade join other construction and elsewhere as indicated. Expansion joints are to be one-half (1/2) inch thick when not otherwise noted. Tool edges of slabs at expansion and contraction joints to a one-fourth (1/4) inch radius.
- B. Construction Joints: In jointing fresh concrete to that which has already set, the surface of the concrete in place must be thoroughly cleaned and have all laitance removed by cutting with a suitable tool. In addition, wet and slush with a coat of grout, no leaner than one (1) part cement to two (2) parts sand.

### 3.04 CONCRETE MIXING

- A. Mix until there is a uniform distribution of the materials and discharge completely before the mixer is recharged.
- B. For job-mixed concrete, rotate the mixer at a speed recommended by the manufacturer and mix continuously for at least one minute after all materials are in the mixer.
- C. Mix and deliver ready-mixed concrete in accordance with ASTM C-94.
- D. Wet batches of concrete may be transported in either agitating or nonagitating trucks. When non-agitator trucks are used, the elapsed time between the addition of water to the mix and depositing the concrete in place must not exceed 45 minutes except that when a retardant admixture is used such elapsed time must not exceed 75 minutes. When the handling is done in truck agitators, such elapsed time must not exceed 60 minutes, except that when a retardant admixture is used a maximum elapsed time of 90 minutes will be permitted.
- E. When concrete arrives on site with slump below that suitable for placing, as indicated by the Specifications, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded.

### 3.05 PLACING CONCRETE

- A. Notify Engineer a minimum of 24 hours prior to commencement of concreting operations.
- B. Equipment for chuting, pumping and pneumatically conveying concrete must be sized and designed as to insure a practically continuous flow of concrete at the delivery end without separation of the materials.
- C. Prevent separation or loss of materials when conveying concrete from mixer to place of final deposit.
- D. No concrete that has partially hardened or been contaminated by foreign material may be deposited on the Work nor retempered.
- E. Deposit as nearly as practicable to its final position to avoid segregation due to rehandling or flowing.
- F. During placement, thoroughly work concrete around reinforcement and embedded fixtures and into the corners of the forms.
- G. At all times, concrete is to be plastic and flow readily into the space between the bars.

When concreting is once started, carry on as a continuous operation until the placing of the panel or section is completed. The top surface to be generally level.

- H. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use vibrators designed to operate with vibratory element submerged in concrete.

### 3.06 UNDER-WATER PLACING (Done only on approval of Engineer)

- A. When conditions require placing through water, a tremie or drop-bottom bucket should be used and the Work must be well supervised. Every precaution must be taken to prevent the cement from washing out of the concrete. The tremie is to be water-tight and large enough to allow a free flow of concrete. It must be kept filled with concrete at all times while depositing. Discharge concrete and spread by moving the tremie as to maintain as nearly as practicable a uniform flow and avoid dropping the concrete through water. If the charge is lost while depositing, the tremie must be withdrawn and refilled. Maintain concrete slump between 6 and 7 inches. Tremie concrete must be pumped into place instead of gravity placed.

### 3.07 COLD WEATHER PLACEMENT

- A. Provide adequate equipment for heating the concrete materials and protecting the concrete during freezing or near-freezing weather. No frozen materials or materials containing ice can be used.
- B. All concrete materials and all reinforcement, forms, fillers and ground with which the concrete is to come in contact must be free from frost. Whenever the temperature of the surrounding air is below 40 degrees F, all concrete placed in the forms must have a temperature of between 70 degrees F and 80 degrees F, and adequate means to provide for maintaining a temperature of not less than 70 degrees F for 3 days or 50 degrees F for 5 days. The housing covering or other protection used in connection with curing must remain in place and intact at least 24 hours after the artificial heating is discontinued. No dependence can be placed on salt or other chemicals for the prevention of freezing.

### 3.08 HOT WEATHER PLACEMENT

- A. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F. Mixing water may be chilled, or chopped ice may be used to control the concrete

temperature, provided the water equivalent of the ice is calculated to the total amount of mixing water.

- B. A shorter mixing time than specified in ASTM C94 may be required. When the air temperature is between 85 and 90 degrees F, reduce the mixing and delivery time from 90 minutes to 75 minutes, and when the air temperature is above 90 degrees F, reduce the mixing and delivery time to 60 minutes.

Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperatures immediately before embedment in concrete. Wet forms thoroughly before placing concrete.

Do not use retarding admixtures without the written approval of the Engineer.

### 3.09 FINISHING CONCRETE

- A. Rough finish for concrete surfaces not exposed to view in the finish Work or covered by other construction.
- B. Strike - off smooth and finish with a texture matching adjacent formed surfaces at tops of walls, horizontal offsets and similar unformed surfaces occurring adjacent to formed surfaces.
- C. Provide a uniform smooth rubbed finish on exposed formed concrete walls, columns, and beams.
- D. Float finish monolithic slab surfaces that are to receive trowel finish or other finish.
  - 1. Trowel Finish: After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/4" in 10 feet when tested with a 10 foot straight-edge. Grind smooth surface defects which would show through applied floor covering system.
  - 2. Non-slip Broom Finish: Apply non-slip fine-hair broom finish to sidewalks, driveways, handicap ramps, curbs, or other items as noted on the Drawings.

### 3.10 CURING

- A. Protect freshly placed concrete from premature drying or heat, and maintain without drying at a relatively constant temperature for a period of time necessary for hydration of cement and proper hardening.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours.
- C. Continue curing for a least 7 days and in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- D. In lieu of moist curing, spray a clear liquid membrane curing compound on all new concrete immediately after initial set. Rate of application to be 200 square feet per gallon or as recommended by the manufacturer.

### 3.11 TESTS

- A. Testing and analysis of concrete will be performed by an independent testing laboratory.
- B. Test firm will take cylinders and perform compression tests in accordance with ASTM C31, ASTM C39, and ASTM C192.

- C. Number of cylinders and frequency of tests will be designated by the Engineer.
- D. One slump test will be performed per ASTM C143 for each set of test cylinders taken.
- E. Cure specimens under laboratory conditions except that when in the opinion of the Engineer, there is a possibility of the surrounding air temperature falling below 40 degrees F., additional specimens may be required and cured under job conditions.
- F. If the average strength of the laboratory control cylinders for any portion of the structure falls below the compressive strengths called for on the Drawings, the Engineer has the right to order a change in the proportions or the water content for the remaining portion of the structure. If the average strength of the job-cured cylinders falls below the required strength the Engineer has the right to require conditions of temperature and moisture necessary to secure the required strength and may require tests in accordance with ASTM C42, or order load tests to be made on the portions of the structure so affected. Remove or replace failing concrete if directed by the Engineer.

### 3.12 PROTECTION

- A. Protect concrete from damage until final acceptance of Work.

END OF SECTION

## SECTION 09900

### PAINTING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Surface preparation and application of protective coatings.
- B. Interior and exterior coating systems.

##### 1.02 REFERENCES

- A. ASTM B117-90 - Salt Spray (Fog) Testing.
- B. ASTM D2247-87 - Testing Water Resistance of Coatings in 100% Relative Humidity.
- C. ASTM D3359-87 - Measuring Adhesion by Tape Test.
- D. ASTM D3363-74 - Film Hardness by Pencil Test.
- E. ASTM D4060-84 - Abrasion Resistance of Organic Coatings by the Taber Abraser.
- F. ASTM D4541-85 - Pull-Off Strength of Coatings Using Portable Adhesion-Testers.
- G. ASTM D4585-87 - Testing the Water Resistance of Coatings Using Controlled Condensation.
- H. AWWA C210-84 - Liquid Epoxy Coating System for the Interior and Exterior of Steel Water Pipelines.
- I. AWWA D102-78 - Painting Steel Water-Storage Tanks.
- J. Steel Structures Painting Council (SSPC) Specifications.
  - 1. SP-1 Solvent Cleaning: Remove all grease, oil, salt, acid, alkali, dirt, dust, wax, fat, foreign matter and contaminants, etc. by one of the following methods: steam cleaning, alkaline cleaning, or volatile solvent cleaning.
  - 2. SP-2 Hand Tool Cleaning: Removal of loose rust, loose mill scale and loose paint to a clean sound substrate by hand chipping, scraping, sanding and wire brushing.
  - 3. SP-3 Power Tool Cleaning: Removal of loose mill scale and loose paint to a clean sound substrate by power tool chipping, descaling, sanding, wire brushing and grinding.
  - 4. SP-5 White Metal Blast Cleaning: Complete removal of all mill scale, rust, rust scale, previous coating, etc., leaving the surface a uniform gray-white color.
  - 5. SP-6 Commercial Blast Cleaning: Complete removal of all dirt, rust scale, mill scale, foreign matter and previous coating, etc., leaving only shadows and/or streaks caused by rust stain and mill scale oxides. At least 66% of each square inch of surface area is to be free of all visible residues, except slight discoloration.
  - 6. SP-7 Brush-Off Blast Cleaning: Removal of rust scale, loose mill scale, loose rust and loose coatings, leaving tightly-bonded mill scale, rust and previous coatings. On concrete surfaces, brush-off blast clean to remove all laitance, form oils and solid contaminants. Blasting should be performed sufficiently close to the surface so as to open up surface voids, bugholes, air pockets and other subsurface irregularities, but so as not to expose underlying aggregate.

7. SP-8 Shop Pickled: Complete removal of rust and mill scale by acid pickling, duplex pickling or electrolytic pickling (may reduce the resistance of the surface to corrosion, if not to be primed immediately).
8. SP-10 Near-White Metal Blast Cleaning: Removal of all rust scale, mill scale, previous coating, etc., leaving only light stains from rust, mill scale and small specks of previous coating. At least 95% of each square inch of surface area is to be free of all visible residues and the remainder limited to slight discoloration.
9. VIS-1 Pictorial Surface Preparation Standards for Painting Steel Surfaces

#### 1.03 ABBREVIATIONS

- A. ASTM - American Society of Testing Materials
- B. AWWA - American Water Works Association
- C. DFT - Dry film thickness.
- D. Exterior - Outside, exposed to weather.
- E. Interior Dry - Inside, concealed or protected from weather.
- F. Interior Wet - Inside, subject to immersion service.
- G. NACE - National Association of Corrosion Engineers
- H. SSPC - Steel Structures Painting Council

#### 1.04 SUBMITTALS

- A. Product data sheets and application instructions.
- B. Color samples for selection by the Owner.
- C. For each coating application, submit an affidavit from the manufacturer stating that the paint selected is recommended for its intended use.
- D. When removal of lead containing paint is part of the Work, submit qualifications such as a copy of a Certification of Training, demonstrating that the person supervising the Work has been trained in removing lead containing paint. In addition, submit a plan for the methods to be employed for surface preparation, containment and ventilation, and collection of debris.

#### 1.05 QUALITY ASSURANCE

- A. All Work to be done by skilled and experienced craftsmen.
- B. When removal of lead containing paint is part of the Work, the person supervising the Work must be trained in lead paint removal by a nationally recognized training organization. A minimum of 16 hours classroom training is required.
- C. The following instruments must be available on the job site for Engineer's use, during all painting activities:
  1. Moisture meter.
  2. 'Tape' type mill profile micrometer.
  3. 'Nordson-Mikrotest' dry film gauge.
  4. Tooke - gauge.
  5. Sponge type holiday detector.

- D. Primers and other undercoat paint must be produced by same manufacturer as finish coats.
- E. Use only thinners approved by the paint manufacturer, and use only within recommended limits.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers.
- B. Container labeling to include manufacturer's name, type of paint, brand name, brand code, batch number, date of manufacturer, shelf life, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- C. Store painting materials in a clean, dry, well ventilated place, protected from sparks, flame, direct rays of the sun or from excessive heat.

1.07 REGULATORY REQUIREMENTS

- A. All coatings used for potable water service must be approved and certified for use by the National Sanitation Foundation (NSF) Standard 61 and conform to AWWA D-102 and AWWA C-210.
- B. All coatings must meet the requirements for volatile organic compounds (VOC) of not more than 3.5 lbs/gallon after thinning.
- C. Contain, handle, and dispose of all hazardous materials, including but not limited to lead containing paint, resulting from surface preparation and painting, in accordance with all applicable local, state and federal requirements.

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Apply paint only on thoroughly dry surfaces and during periods of favorable weather, unless otherwise allowed by the paint manufacturer. Except as provided below, painting is not permitted when the atmospheric temperature is below 50° F, or when freshly painted surfaces may be damaged by rain, fog, dust, or condensation, and/or when it can be anticipated that these conditions will prevail during the drying period.
- B. Do not apply coatings unless the surface temperature is a minimum of 5° above the dew point; temperature must be maintained during curing.
- C. Dew Point Calculation Chart

Ambient Air Temperature - Fahrenheit

Relative Humidity	20	30	40	50	60	70	80	90	100	110	120
90%	18	28	37	47	57	67	77	87	97	107	117
85%	17	26	36	45	55	65	76	84	95	104	113
80%	16	25	34	44	54	63	73	82	93	102	110
75%	15	24	33	42	52	62	71	80	91	100	108
70%	13	22	31	40	50	60	68	78	88	96	105
65%	12	20	29	38	47	57	66	76	85	93	103
60%	11	29	27	36	45	55	64	73	83	92	101
55%	9	17	25	34	43	53	61	70	80	89	98
50%	6	15	23	31	40	50	59	67	77	86	94

45%	4	13	21	29	37	47	56	64	73	82	91
40%	1	11	18	26	35	43	52	61	69	78	87
35%	-2	8	16	23	31	40	48	57	65	74	83
30%	-6	4	13	20	28	36	44	52	61	69	77

SURFACE TEMPERATURE AT WHICH CONDENSATION OCCURS

- D. Suitable enclosures to permit painting during inclement weather may be used if provisions are made to control atmospheric conditions artificially inside the enclosure, within limits suitable for painting throughout the painting operations.

1.09 EXISTING CONDITIONS

- A. When unable to inspect the interior surfaces of existing tanks during bidding, assume 25 percent of the area is pitted as defined by the Steel Structures Painting Council.

1.10 EXTRA MATERIALS

- A. Provide a one gallon container of each color and surface texture to Owner.
- B. Label each container with color, texture, location used, in addition to the manufacturer's label.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. All materials specified herein are manufactured by the Tnemec Company, Inc., North Kansas City, Missouri, unless noted otherwise. These products are specified to establish standards of quality and are approved for use on this Project.
- B. Equivalent materials of other manufacturers may be substituted on approval of the Engineer. Requests for substitution must include manufacturer's literature for each product giving the name, generic type, descriptive information and evidence of satisfactory past performance and an independent laboratory certification that their product meets the performance criteria of the specified materials.
- C. Performance Criteria
  - 1. Abrasion - ASTM D4060, CS-17 Wheel, 1,000 grams load.
  - 2. Adhesion - ASTM D3359, Method B or ASTM D4541.
  - 3. Exterior Exposure - Exposed at 45 degrees facing the ocean (South Florida Marine Exposure).
  - 4. Hardness - ASTM D3363.
  - 5. Humidity - ASTM D2247 or ASTM D4585.
  - 6. Salt Spray (Fog) - ASTM B117.
- D. Substitutions which decrease the film thickness, the number of coats applied, change the generic type of coating, or fail to meet the performance criteria of the specified materials will not be approved. Primer and finish coats on all surfaces must be furnished by the same manufacturer.

## 2.02 MATERIALS

- A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating. Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified. Of commercial quality.
- C. Cement - Base Patching: Thorite by Thoro System Products of Miami, Florida.
- D. Colors: When not specified, as selected by the Owner.

## 2.03 EQUIPMENT

- A. Use effective oil/water separators on all compressed air lines serving spray painting and sandblasting operations to remove oil or moisture from the air before it is used. Place separators as far as practicable from the compressor.
- B. All equipment for application of the paint and the completion of the Work must be in first-class condition and comply with recommendations of the paint manufacturer.

## PART 3 EXECUTION

### 3.01 INSPECTION

- A. Applicator must examine areas and conditions under which painting Work is to be completed and notify Engineer in writing of conditions detrimental to proper and timely completion of Work.
- B. Inspect the substrate and report any unsatisfactory conditions. Contractor is not responsible for latent defects in the substrate which can not be detected during a reasonable visual inspection. Starting the Work indicates acceptance of the substrate as constructed.
- C. All surfaces to be painted are subject to review by the Engineer before application of the prime coat and each succeeding coat. Any defects or deficiencies are to be corrected by the Contractor before application of any subsequent coat.
- D. When any appreciable time has elapsed between coats, previously coated areas are to be reviewed by the Engineer. Where surfaces are damaged or contaminated, they are to be cleaned and recoated. Adhere to recoating times of manufacturer's printed instructions.

### 3.02 SURFACE PREPARATION

- A. General: Clean surfaces as specified and in accordance with the manufacturer's recommendation for the coating being used. If surfaces are subject to contamination other than mill scale or normal atmospheric rusting, the surfaces are to be pressure washed, and acid or caustic pH residues neutralized, in addition to the specified surface preparation.
- B. Concrete and Masonry: Remove all oil, grease, dirt, laitance and other foreign materials. Blast remove all existing coatings using equipment rated at 3500 psi. Acid etch with a solution of muriatic acid and then rinse with clean water. Verify required acid-alkali balance is achieved. Surface must be dry and free of dust prior to painting. New concrete and masonry must be cured a minimum of 28 days before treating and coating.

Repair damaged concrete using a cement base patching system. Use in strict accordance with the manufacturer's recommendations.

- C. Plaster: Remove dirt, loose mortar, scale, chalk, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry.

Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry. Fill hairline cracks, small holes, and imperfections with a latex patching plaster.

- D. Gypsum Drywall: Latex fill minor defects. Spot prime after repair. Remove dust from surface by wiping with clean rags or other means.
- E. Carbon Steel: Remove all oily and greasy residues in accordance with SSPC-SP1. Blast clean using Dupont's 'Starblast' as the blasting media in accordance with SSPC-SP10. 'Starblast' is the only blasting media allowed to be used. Apply primer coat before any rust bloom forms.
- F. Galvanized Steel and Other Non-Ferrous Metals: Surface to be clean and dry. Remove oil, grease, and protective mill coatings by solvent cleaning per SSPC-SP1. Remove white rust from galvanized steel by hand or power brushing. Take care not to damage or remove the galvanizing. Remove rust from old galvanized steel by hand or power tool cleaning in accordance with SSPC-SP2 or SSPC-SP3.
- G. PVC Pipe: Remove surface contaminants. Roughen surface by sanding to provide adhesion for primer coat.
- H. Wood: Remove dust, grit and foreign matter. Seal knots, pitch streaks, and sappy sections. Fill nail holes and cracks. Wood must be clean and dry before application of coating.
- I. Fiberglass Reinforced Plastic: Roughen by brush blasting to provide adhesion for primer coat.

### 3.03 PROTECTION

- A. Protect elements surrounding the Work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by Work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- D. Erect, maintain, and dismantle scaffolding without damage to structures, machinery, equipment or pipe. Use drop cloths to protect buildings and equipment.
- E. Construct a temporary shroud or cover to contain and collect all spent abrasives and old paint. Dispose of spent abrasives and old paint in accordance with all local, state and federal requirements.

### 3.04 APPLICATION

- A. Apply products in strict accordance with the coating manufacturer's instructions.
- B. Apply coating uniformly at the prescribed thickness. Prevent film defects that would adversely affect the appearance or performance.
- C. Apply prime coat immediately following surface preparation and in no case later than the same working day. Apply by brushing, paint mitt and roller, conventional spraying, or airless spraying, using equipment approved by the coatings manufacturer.
- D. Recoat as per the manufacturer's instructions. Coating is considered recoatable when an additional coat can be applied without any detrimental film irregularities such as lifting or loss of adhesion.
- E. Surfaces that will be inaccessible after assembly are to receive either the full specified paint system or three shop coats of the specified primer before assembly.

- F. Brushing or rolling is to be done so that a smooth coat as nearly uniform in thickness as possible is obtained. Smooth the film so as not to leave detrimental marks.
- G. When using an air, airless or hot spray, apply paint in a uniform layer, with a 50 percent overlap pattern. Brush out all runs and sags immediately or the paint will have to be removed and the surface resprayed.
- H. High build coatings should be applied by a cross-hatch method of spray application to ensure proper film thickness of the coating.
- I. Surfaces not accessible to brushes, rollers or sprays may be painted by a dauber, sheepskin, or paint mitt.
- J. Sand lightly between each succeeding alkyd enamel or varnish coat.

### 3.05 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Approval from the Owner is required prior to field painting in the vicinity of, or on, energized electrical and rotating equipment, and equipment and/or pipes in service.
- B. Exercise extreme care in the painting of operable equipment, such as valves, electric motors, etc., so that the proper functioning of the equipment will not be affected.
- C. Degloss factory finish.
- D. Do not paint identification markings or code required labels.
- E. Match associated piping color with finished paint color. See piping color code.

### 3.06 CLEANING

- A. Contain paint overspray and debris by suitable means, including but not limited to, full shrouding of the area.
- B. As Work proceeds, promptly remove paint where spilled, splashed or splattered.
- C. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.

### 3.07 COATING SYSTEMS - INTERIOR SURFACES

- A. Concrete Floors
  - 1. One coat of Tnemec Series 287 Enviro-Tread (Waterborne Epoxy) applied at 3.0 mils DFT (273 SF/Gal).
  - 2. A second coat of Tnemec Series 287 Enviro-Tread applied at 3.0 mils (273 SF/Gal).
  - 3. Where requested by Owner add or broadcast Series S287-300C (sand) to the 1<sup>st</sup> coat for a non-slip finish.
- B. Masonry Block Walls
  - 1. One coat Tnemec 54-WB surface coat masonry filler. Apply at a minimum rate of 80-100 square feet per gallon to concrete block surfaces only.
  - 2. One coat Series 113 H.B. Tnemec-Tufcoat water-base acrylic epoxy. Apply at a minimum rate of 120-170 square feet per gallon. Two coats will be required if applied by roller.
- C. Concrete (including exposed ceilings)

1. Two coats Series 113 H.B. Tnemec-Tufcoat water base acrylic epoxy. Apply at a minimum rate of 120-170 square feet per gallon.

D. Gypsum Drywall

1. One coat Tnemec-cryl Sealer (thinned 10%). Apply at a minimum rate of 400 square feet per gallon.
2. One coat Series 113 H.B. Tnemec-Tufcoat water-base acrylic-epoxy. Apply at a minimum rate of 120-170 square feet per gallon. Two coats will be required if applied by roller.

E. Carbon Steel, Ductile Iron, or Cast Iron

1. Prime coat Tnemec Series N69-1211 Epoxoline Primer epoxy-polyamide, 3-5 mils DFT.
2. Finish coat Tnemec Series N69 Hi-Build Epoxoline II epoxy-polyamide, 4-6 mils DFT.

F. Fuel Oil Tanks

1. Prime coat Series 61-5002 Tnemec-Liner high solids catalyzed epoxy, 8-12 mils DFT.
2. Finish coat Series 61-5001 Tnemec-Liner high solids catalyzed epoxy, 8-12 mils DFT.

G. Galvanized Steel and Other Non-Ferrous Metals

1. One coat Tnemec Series N69 Hi-Build Epoxoline epoxy-polyamide, 4-6 mils DFT.

H. PVC Piping

1. Two coats Tnemec Series N69 Hi-Build Epoxoline epoxy-polyamide. Apply at a minimum rate of 300 square feet per gallon per coat.

I. Shop Finished Electrical and Mechanical Equipment

1. One coat Tnemec Series 27 F/C/ Tu[ppxu (Fast Cure E[pxu), 2-6 mils DFT.
2. One coat Tnemec Series N69 Hi-Build Epoxoline epoxy-polyamide, 4-6 mils DFT.

J. Wood Trim and Doors - Painted

1. Prime coat of Tnemec Series 10-99 W Tnemec primer applied at 2.5 mils DFT (350± SF/Gal)..
2. Two coats of Tnemec Series 23 Enduratone (Semi-Gloss Alkyd Enamel) applied at 2.0 mils DFT per coat.

3.08 COATING SYSTEMS - EXTERIOR SURFACES

A. Carbon Steel, Ductile, or Cast Iron

1. Prime coat Tnemec Series 135 (Chembuild Surface Tolerant Epoxy), 3-5 mils DFT.
2. Finish coat Tnemec Series 73 Endura-Shield III high build acrylic polyurethane, 2-5 mils DFT.

B. Galvanized Steel and Other Non-Ferrous Metals

1. Prime coat Tnemec Series N69 Hi-Build Epoxoline epoxy-polyamide, 2-3 mils DFT.
2. Finish coat Tnemec Series 73 Endura-Shield III high build acrylic polyurethane, 2-5 mils DFT.

C. Above Ground Fuel Storage Tanks

1. Shop Primer: One coat Series 90-97 Tnemec-Zinc zinc-rich urethane, 2.5-3.5 mils DFT.
2. Field Touch-Up: Series 90-97 Tnemec-Zinc, 2.5-3.5 mils DFT.

3. Full first coat Tnemec Series N69 Hi-Build Epoxoline epoxy polyamide, 2-3 mils DFT.
4. Finish coat Tnemec Series 73 Endura-Shield III high-build acrylic polyurethane, 2-5 mils DFT.

D. PVC Piping

1. One coat Tnemec Series N69 Hi-Build Epoxoline epoxy polyamide. Apply at a minimum rate of 300 square feet per gallon.
2. One coat Tnemec Series 73 Endura-Shield III high-build acrylic polyurethane. Apply at a minimum rate of 300 square feet per gallon.

E. Fiberglass Reinforced Plastic

1. One coat Tnemec Series N69 Hi-Build Epoxoline epoxy polyamide. Apply at a minimum rate of 300 square feet per gallon.
2. One coat Tnemec Series 73 Endura-Shield III high-build acrylic polyurethane. Apply at a minimum rate of 300 square feet per gallon.

F. Shop Finished Electrical and Mechanical Equipment

1. Prime coat Tnemec Series 27 F.C. Typoxy (fast cure epoxy), 2-3 mils DFT.
2. Finish coat Tnemec Series 73 Endura-Shield III high-build acrylic polyurethane, 2-5 mils DFT.

G. Masonry Block Walls

1. Block Filler – Tnemec Series 54WB surface coat Masonry Filler applied at 80± SF/Gal.
2. Finish per requirements below.

H. Precast and Cast In Place Concrete

1. Above Grade Coating – Finish per requirements below.
2. Below Grade Coating – Apply one coat Series 46H-413 Hi-Build Theme-Tar (Coal Tar Epoxy), 14.0 to 20.0 mils DFT.

I. Plaster, Above Grade Concrete, and Stucco

1. Prime Coat: Thoro Primer 2K by Thoro System Products of Miami, Florida. Apply at the minimum rate of 200 square feet per gallon.
2. Finish Coats: Two coat Thorosheen by Thoro System Products of Miami, Florida. Apply at the minimum rate of 200 square feet per gallon.
3. See Section 07145 for additional requirements for new or repaired concrete and masonry surfaces.

3.09 PIPING COLOR CODE

Water Lines

Raw	Olive Green
Settled or Clarified	Aqua
Finished or Potable	Dark Blue

Chemical Lines

Alum or Primary Coagulant	Orange
Ammonia	White
Carbon Slurry	Black
Caustic	Yellow with Green Band
Chlorine (Gas and Solution)	Yellow
Fluoride	Light Blue and Red Band
Lime Slurry	Light Green
Ozone	Yellow with Orange Band
Phosphate Compounds	Light Green with Red Band

Polymers or Coagulant Aids	Orange with Green Band
Potassium Permanganate	Violet
Soda Ash	Light Green with Orange Band
Sulfuric Acid	Yellow with Red Band
Sulfur Dioxide	Light Green with Yellow Band

Fuel Oil Lines

Black Oil	Yellow
Diesel	Yellow

Waste Lines

Backwash Waste	Light Brown
Sludge	Dark Brown
Sewer (Sanitary and Other)	Dark Gray

Other

Compressed Air	Dark Green
Gas	Red
Other Lines	Light Gray

3.10 PAINTING SCHEDULE

- A. All newly installed equipment, piping, conduit, structures, etc., and appurtenances shall be painted as specified in the Contract Documents. All colors shall be as approved by the Owner.
- B. All existing surfaces that are modified or damaged as part of this project.
- C. Items not to be painted include: Stainless steel items, aluminum items, fiberglass items, concrete corrosion prevention liner, and factory painted electrical boxes or similar factory finished items (with approval of engineer), inside of clearwell, and fiberglass grating.

END OF SECTION

## SECTION 11260

### CHEMICAL METERING PUMP FEED SYSTEMS

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, documentation, training and incidentals required to manufacturer, install, and place in operation, completely pre-assembled, packaged multi-pump chemical metering pump feed systems for sodium hypochlorite.
- B. These Specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment application. It is, however, intended to cover the furnishing, the shop testing, the delivery and complete installation and start up, including field testing, of all materials, equipment and appurtenances for the complete pumping unit as herein specified, whether specifically mentioned in these specifications or not.
- C. Meter pump control panels shall be provided by the chemical metering pump feed system supplier.

##### 1.02 DESCRIPTION OF SYSTEMS

- A. The chemical metering systems shall be completely self-contained and designed to safely feed metered amounts of sodium hypochlorite. The major components of the chemical metering pump feed system shall include, at a minimum, the following:
  - 1. Metering pump(s), calibration column(s), back pressure valve(s), pressure relief valve(s), pulsation dampener(s), pressure gauge(s), flushing inlet, flushing outlet and all necessary piping, valves and controls to provide a complete system.
  - 2. Operation and Maintenance Manuals.
  - 3. Spare parts and accessories.
  - 4. Start-up and training services.

##### 1.03 QUALITY ASSURANCE

- A. All products of this section shall be provided by a single system manufacturer; who shall have unit responsibility for providing all equipment, accessories, spare parts, documentation, assembly and installation supervision required for a complete and operational chemical feed system for all chemical applications.
- B. The chemical metering pump feed system components and installation shall comply with the Uniform, Standard and National Building and Fire Codes.

##### 1.04 DESIGN/PERFORMANCE REQUIREMENTS

- A. Each chemical metering pump feed system, including all components, metering pumps, accessories, etc., shall be suitable for feeding the specified chemical solution at capacities and pressures specified herein. All wetted materials of construction shall be compatible with the specified chemical solution.
- B. The system manufacturer shall be ISO 9001 certified and shall submit the copy of the ISO 9001 certification. If the system manufacturer is not ISO 9001 certified, the system manufacturer will be required to submit factory witness test data certified by a registered Professional Engineer.

- C. Each chemical metering pump feed system shall be pre-piped and pre-wired at the factory with all components assembled and mounted on a corrosion resistant skid. The system shall be hydraulically and electrically tested at the factory and shall be shipped assembled to the fullest extent possible.
- D. Chemical metering pump feed systems shall have a maximum depth of 32”.

#### 1.05 SUBMITTALS

- A. Submit system manufacturer’s complete shop drawings, product data, and engineering, including at a minimum:
  - 1. Actual photographs of similar units previously manufactured, demonstrating the quality of construction of both skid and skid enclosure.
  - 2. Certified dimensional drawings of each item of equipment and auxiliary apparatus to be furnished.
  - 3. Descriptive data, specifications and drawings describing, in detail, the construction of each pump, including parts list and materials of construction
  - 4. Pump/Motor Outline and Cutaway Drawings
  - 5. Accessories Drawings
  - 6. Control Drawing and Data
  - 7. Typical Installation Guides
  - 8. Technical Manuals
  - 9. Total weight of chemical metering pump feed system
  - 10. Parts List
  - 11. Manufacturer’s Standard Recommended Start-Up Report Form
  - 12. Statement of design conditions and performance guarantee
  - 13. Statement of warranty
  - 14. Written field testing report
- B. Submit system manufacturer’s complete Operation and Maintenance Manuals prepared specifically for this installation, including at a minimum:
  - 1. Equipment function, normal operating characteristics, and limiting conditions
  - 2. Assembly, installation, alignment, adjustment, and checking instructions
  - 3. Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions
  - 4. Lubrication and maintenance instructions
  - 5. Guide to “troubleshooting”
  - 6. Parts lists and predicted life of parts subject to wear
  - 7. Outline, cross-section, and assembly drawing; engineering data; and wiring diagrams
  - 8. Test data and performance curves
  - 9. Safety precautions

#### 1.06 PRODUCT HANDLING

- A. All equipment and parts must be properly protected against any damage during shipment or prolonged periods at the site or until installation is completed and the system is operational. Equipment shall be stored in accordance with the manufacturer’s recommendations.
- B. Factory assembled parts and components shall not be dismantled for shipment. No components of the system shall be shipped “loose”.
- C. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.

## 1.07 WARRANTY

- A. The system manufacturer shall warrant, for a period of 2 years from date of Project substantial completion, that the chemical metering pump feed systems shall perform as described in the Project Specifications and shall warrant all parts, labor and materials of the systems to be free from defects in workmanship, design or material. The manufacturer shall repair or provide replacement for any defective components under this warranty.

## PART 2 - PRODUCTS

### 2.01 SYSTEM MANUFACTURER

- A. The chemical metering pump feed system shall be as supplied by: (no equals allowed):
  - 1. Blue Planet Environmental Systems, Inc.
  - 2. Jacobs Air Water Systems Group
- B. Chemical metering pumps shall be as supplied by (no equals allowed):
  - 1. LMI Milton Roy
  - 2. Prominent Sigma

### 2.02 CORROSION RESISTANT SKID(S)

- A. Each chemical metering pump feed system shall have a corrosion resistant skid suitably sized for all specified pumps and components; all components shall be contained within each skid. The design of the skid shall include gussets and supports as required for all components and shall be self-supporting. The skid shall incorporate containment capability and feature a containment drain with ball valve. The skid shall be of polypropylene, FRP or PVC construction and shall be manufactured using continuous welding technology; bolted construction shall not be accepted. Pedestals of like construction shall be provided to elevate the metering pumps above the skid base. The pedestals shall be of unitary design with no welds. The pedestal shall be bolted to the skid base with non-metallic bolts to allow for future pump/piping modification. The skid shall have a multi-section rigid Plexiglas (transparent clear) splash guard hinged to fold out of the way for service.

### 2.03 CHEMICAL METERING PUMPS – REVERSE OSMOSIS POST CHLORINATION SYSTEM

- A. The metering pumps shall be positive displacement, hydraulically activated diaphragm liquid end, reciprocating, flat diaphragm type, variable speed electric motor driven metering pumps designed to deliver capacities and pressures as specified herein for 24-hour continuous operation. Solenoid-driven pumps, mechanically actuated diaphragm pumps will not be accepted.
- B. All pumps and drives shall be designed for operation using non-toxic food grade oil suitable for use in potable water systems.
- C. Each metering pump shall be capable of adjusting capacity through 100% of the range by a manual micrometer dial. This manual capacity adjustment shall be possible whether the pump is running or stopped. Stroke adjustment shall be accomplished by a variable oil bypass type mechanism with the plunger powered through its entire travel. Mechanical lost motion designs shall not be accepted.
- D. The metering pump stroke length shall be manually adjustable by means of a stroke length knob, in increments of 1%, from 0% to 100% of the stroke length. The stroking speed shall not exceed 144 spm. The, the pumps shall be sized to deliver the required capacity at 85% of maximum stroke length.

- E. The drive housing shall be heavy duty industrial grade constructed of aluminum and painted with corrosion resistant epoxy paint.
- F. The process diaphragm shall be Teflon and have a minimum design life of 90,000 hours at rated conditions.
- G. Pump must be able to operate under completely dry or starved suction at maximum capacity without damage to diaphragm or pump.
- H. Pump diaphragm shall be returned to its rearward suction position by hydraulic forces.
- I. Each metering pump shall include an automatic vent and refill mechanism on the hydraulic side, which operates once each stroke. Each pump shall have an internal relief valve, which is externally adjustable. All parts of the power train must be submerged in oil for proper operation.
- J. Each metering pump shall have suction and discharge check valves with balls and seats that are capable of being removed from the check valve body for inspection, cleaning or replacement. Check valve seats that thread into liquid end are not acceptable.
- K. Each metering pump shall be furnished with factory-mounted motors sized for continuous operation at maximum operating conditions. Motors shall be NEMA type flange mounted. Motor to be 90 volt DC motor. Variable speed control is to be provided using existing DC variable speed drive. Pump and motor/drive shall be suitable for indoor/outdoor operation.
- L. The metering pump heads for the sodium hypochlorite shall be constructed of PVC.
- M. Each pump needs to be plumbed with a fresh water flushing port on the inlet and outlet side of the pump. Outlet port to be located between pump head and back pressure valve.
- N. Any necessary safety interlocks shall be provided and wired to the control panel.

#### 2.04 CHEMICAL METERING PUMPS – PROPOSED LIME SOFTENING POST CHLORINATION SYSTEM AND FILTER BACKWASH CHLORINATION SYSTEM

- A. The chemical metering pump(s) shall be positive displacement, microprocessor controlled, motor-driven, reciprocating, mechanically-actuated diaphragm type. The pump shall include integral motor, oil-lubricated or permanently greased lubricated bearings, gear reducer and cam-and-spring drive mounted in an aluminum housing. Housing shall be sealed into an outer plastic housing for corrosion protection.
- B. The liquid end shall be physically separated from the drive unit by a back plate with weep hole creating an air gap. An elastomer shaft wiper seal shall prevent contamination of the solenoid if the primary diaphragm fails. The diaphragm shall be nylon-reinforced EPDM with PTFE-faced fluid contact surface. The pump shall also have a diaphragm failure detector with a visible indicator of diaphragm rupture.
- C. The diaphragm shall be of a convex design fitting into a concave liquid end to minimize dead volume and promote flow of solids in suspension
- D. The liquid end shall be virgin PVDF. The suction and discharge valve shall be PVDF with PTFE-faced Viton® gasket seals and ceramic valve balls.
- E. Materials of Construction: Materials of construction shall be compatible with the process chemical and shall be as follows, unless alternate materials that may be recommended by the Manufacturer are approved by the Engineer during shop drawing submittal:

- |    |                      |   |   |
|----|----------------------|---|---|
| 1. | Valve body and seats | - | PVDF  |
| 2. | Valve balls          | - | Ceramic   |
| 3. | O-rings              | - | PTFE  |
| 4. | Pump end connections | - | PVDF  |
| 5. | Valve Seats          | - | PTFE  |
| 6. | Diaphragm            | - | Steel core vulcanized into nylon reinforce EPDM with PTFE-faced fluid contact surface |
- F. Stroke length control shall be adjustable manually by means of a stroke length knob, in increments of 1%, from 0% to 100% of stroke length. Stroke length shall be determined by a sensor within the stroke adjustable knob that provides accurate feedback to the electronics of the pump for calibration for LCD display of stroke length. The digital display and optional analog output will calculate, display, and transmit the flow of the pump based on pump speed and stroke length settings.
- G. Stroke frequency control shall be done with an integral VFD and stepper motor pump controller. For the integral controller, the first 1/3 of the frequency in strokes per minute will operate with the stepper motor and frequency greater than 1/3 will operate with the internal VFD. Control shall be switchable between manual or external control via 4-20 mA signal. In manual mode, stroke frequency control shall be manually adjusted by touch keypads, with the set stroke rate displayed on the pump's LCD. In external mode, the pump shall be capable of receiving a 4-20 mA input via optional external control cable. The metering pump shall be capable of remote ON-OFF operation using the PAUSE function via a voltage-free contact relay through an optional control cable. Pump shall include TEFC, AC motor.
- H. Vector control or controlled motor magnetization shall be configured into the pump. Such control shall include torque or energy monitoring, allowing for detection of hydraulic defects such as discharge overhead, with consequent pump shut-down.
- I. The pump shall include a removable HMI which can be mounted on the pump, wall, on the pump skid, or on the control panel.
- J. The pump shall be calibrated to display pump output in gallons/hour. Calibration shall be maintained when stroke length is altered up to  $\pm 10\%$  on the stroke length knob. If stroke length is altered by more than 10%, a yellow warning light shall illuminate and a flashing message "calib" will appear to avoid uncalibrated chemical feed.
- K. Keypad shall allow for scrolling and display on LCD such parameters as stroke frequency, stroke length, stroke counter, pump output in gals/hr, dosing quantity, mA current input being received by pump, and indication of external mode.
- L. Keypad programming shall allow for selecting fast or slow suction and discharge stroking profiles. Such variable dosing profiles shall allow for potential reduction in NPSH or more laminar discharge stroke.
- M. Chemical metering pump motors shall operate on 120 volt, single phase, 60 hertz AC power.

## 2.05 PIPING – GENERAL

- A. Each metering pump piping system shall include the accessories as described below and all required piping, valves and supports. Piping shall include isolation valves and unions for all serviceable components. The suction piping shall be sized to provide adequate NPSH to the pumps and shall be designed to minimize the effects of chemical off-gassing. The suction piping shall feature a y-strainer and a calibration column shall be provided and designed for use with any of the metering pumps. The discharge piping shall allow for each pump to serve individual loads or a common load with backup. Pressure relief valves shall be provided on the pump discharge to protect the pumps

from excessive backpressure or dead-head conditions. A by-pass line shall run from the pressure relief valves back to the suction line. Isolation valves shall be provided on the suction and discharge of the pumps for ease of maintenance. A reasonable amount of free space on the suction and discharge piping sub-assemblies shall be provided to allow for future pump/piping modifications.

- C. The piping shall be attached to the skid with a non-metallic corrosion resistant support system. All support channel shall be welded to the skid; bolted or screwed supports shall not be accepted. The straps shall be removable and reusable to allow for servicing of the system. All inlet/outlet connections, valves and pump accessories shall be clearly labeled on the skid for easy identification.
- D. Each metering pump shall have a flexible connection on the intake and discharge side of the pump head. Flexible connection shall be manufactured and installed by the pump manufacturer, and shall be compatible with the chemical being pumped.
- E. Provide flow direction decals for all skid mounted piping.

## 2.06 PIPING – POLYVINYL CHLORIDE (PVC)

- A. All pipe and fittings shall be Schedule 80 PVC material.
- B. All fittings shall be injection molded of PVC fitting compound of cell classification 12454-B as described in ASTM D-1784 Standard Specification for Rigid Poly (Vinyl chloride) Compounds and Chlorinated Poly (Vinyl chloride) Compounds.
- C. All molded threads, internal or external, shall be “blunt start” threads. All threads shall conform to thread standard ANSI/ASME B1.20.1 for tapered pipe threads. Threads shall measure not more than 1 1/2 threads large or small when checked with a plug gauge or ring gauge.
- D. Dimensions and tolerances of sockets shall conform to PVC IPS Schedule 40/80 Socket Dimensions. All reducer bushings shall be designed so as to provide for a positive and sufficient grip for cementing bushings in place. Waterways shall be smooth and commercially free of flash and irregularities. On tees and 90-degree elbows, bond lines shall not coincide with the maximum stress area (crotch).
- E. Assembly shall be performed in a controlled shop environment by the system manufacturer. All pipe shall be square cut on precision equipment with the ends chamfered and deburred. All socket welded connections shall follow the guidelines set by the pipe/fitting manufacturer for proper cleaning, priming and gluing procedures. A heavy bodied solvent suitable for use with sodium hypochlorite, sodium hydroxide and scale inhibitor shall be used. All threaded connections shall use Teflon tape, a suitable thread sealant or a combination of both. Threaded connections shall use stainless steel reinforcement rings where applicable to reduce the risk of cracking.
- F. All piping and fittings shall bear the company’s name or trademark, material designation, size and applicable IPS schedule.
- G. All ball valves shall be of true union design with two-way blocking capability. All o-rings shall be EPDM or FKM with PTFE seats. PTFE seats shall have elastomeric backing cushion of the same material as the valve seals. Stems shall have double o-rings and shall be of blowout-proof design. The valve handle shall double as a carrier removal and/or tightening tool. ISO mounting pad shall be integrally molded to valve body for actuation. The ball valves shall have a pressure rating of 230 psi for sizes ½” to 3” and 150 psi for 4” at 70°F. All ball valves shall be vented to avoid entrapment of vapors.
- H. All piping shall have a pressure rating of 230 psi for size ½” to 3” and 150 psi for 4” at 70°F.

## 2.07 CALIBRATION COLUMN(S) – GENERAL

- A. Clear calibration column(s) shall be provided and piped to the suction piping with an isolation valve. The column shall be self-filling in that the discharge manifold will allow for filling of the column in the event of non-flooded suction conditions. The column shall be direct reading in GPH and sized to allow at least a 30-second drawdown. The top of the column shall have sealed tops and threaded vent connection. Vents shall be field piped back to the storage tank vent piping.
- B. Columns for sodium hypochlorite shall be viton or glass. Calibration column(s) shall be sized for each skid specified herein and have protective clear acrylic shields, PTFE wetted end pieces and viton elastomers.

## 2.08 PRESSURE RELIEF VALVE(S)

- A. A pressure relief valve(s) shall be provided in the discharge piping of each metering pump, prior to any valves, to eliminate the buildup of excess pressure in the system. The pressure relief valves shall be fully adjustable from 0-150 psi with bodies compatible with the specified chemical, have a Teflon diaphragm and have no metal parts in contact with the chemical. The pressure relief valve initial setting shall be set at a pressure lower than the pump internal relief valve. Output of the pressure relief valve shall return to the pump suction header.

## 2.09 BACK PRESSURE/ANTI-SYPHON VALVE

- A. A back pressure/anti-syphon valve shall be provided in the discharge piping of each metering pump to provide constant back pressure at the metering pump discharge. Each back pressure valve shall be fully adjustable from 0-150 psi with bodies compatible with the specified chemical, have a Teflon diaphragm and have no metal parts in contact with the chemical. Contractor shall install a second back pressure/anti-syphon valve in the discharge piping within two feet of the point of chemical injection. Valves shall be sized to match appropriate piping.

## 2.10 PRESSURE INDICATOR/PRESSURE GAUGE

- A. A 316 stainless steel pressure liquid-filled gauge shall be provided for indication of system pressure in the discharge piping of each metering pump. The gauge shall be sized at least 25% higher than the pump internal relief valve set pressure. The isolators for each gauge shall have housings compatible with the specified chemical, have a Teflon diaphragm and be suitable liquid fill. Gauge shall be minimum 4-1/2" diameter.

## 2.11 PULSATION DAMPENER

- A. A discharge pulsation dampener shall be provided and sized to limit discharge pressure to plus or minus 5%. Pulsation dampener(s) shall include a diaphragm-separating air chamber, charged to the manufacturer's recommended pressure and pressure gauge. The dampener shall be installed in the discharge piping of each metering pump, as close to the metering pump discharge check valve as possible. Pulsation dampeners shall be field adjustable and field serviceable without special tools and all wetted chamber and diaphragm materials shall be compatible with the specified chemical.

## 2.12 MAGNETIC FLOW METER

- A. An Endress Hauser magnetic flow meter with 316 Stainless Steel body and a Teflon lined throat shall be provided and shall be installed in the discharge piping for each metering pump system. The flow meter shall match equipment currently in use on the existing liquid chlorine metering pump system. Flowmeter shall be housed in a Nema 4X enclosure. All wetted parts shall be compatible with the specific chemical being pumped. The magnetic flow meter shall include a local LCD display; scaled to indicate current feed rate in GPH and a re-settable totalizer scaled in gallons. A 4-

20 mA output and high and low alarm limit relays shall also be provided. All electrical connections shall be terminated in the skid mounted VC NEMA 4X terminal junction box.

## 2.13 METERING PUMP CONTROLS – PROPOSED TRIPLEX SKID

- A. Chemical metering pumps shall include built-in microprocessor controls as described above. All metering pump control cables shall terminate in the NEMA 4X FRP control panel mounted to the chemical metering skid.

The control panel shall be manufactured in accordance with the National Electric Code and NEMA as applicable.

The control panel manufacturer shall have total system control responsibility. The manufacturer shall have local experience in providing control panels of the types and functions as specified herein.

The control panel shall be constructed by an UL approved shop and UL 508 listed. The control panel shall carry the UL Label.

The panel builder shall provide functions as described using his own standard schematics and arrangements. All wires shall be numbered and brought to numbered terminals. Complete schematics, outline Drawings, and component catalog information (cut-sheets) shall be provided for approval.

- B. NEMA 4X FRP terminal box control panel shall be provided on the skid back panel for termination of all wiring. A power outlet with weatherproof cover shall be provided for any metering pumps or accessories that require an outlet. The inside cover of the terminal box shall include a wiring diagram detailing the function of all terminals. A power disconnect switch shall be provided in the terminal junction box. Surge protection shall be provided locally in the skid mounted terminal junction box. Protection shall be provided for the main power supply as well as all analog input and output signals. Surge protection devices shall be as manufactured by EDCO Inc. of Florida. The NEMA 4X TJB shall provide the following I/O at a minimum.

1. Terminals for 120VAC power (local heavy duty surge protection included).
2. 15A Breaker for Main AC Power.
3. HOA Selector Switch for each pump.
4. DI = Run Command for each pump.
5. AI = Speed Command for each pump (local surge protection included).
6. AO = Speed Feedback for each pump.
7. DO = Remote Status for each pump.
8. DO = Fault Status for each pump.
9. AO = Flow for each pump.

## 2.14 LIQUID CHLORINE CHEMICAL FEED SYSTEMS

- A. All wetted components shall be compatible with a minimum sodium hypochlorite concentration of 15-percent.
- B. All liquid chlorine chemical feed systems shall meet the requirements of the specifications stated herein.
- C. Each metering pump head shall be PVC and shall meet the following minimum capacity and pressure design criteria for each of the following pumping applications:
- D. Triplex Metering Pump Skid

1. Furnish one triplex metering pump skid consisting of two pumps for the lime softening post chlorination application point and one pump for the filter backwash chlorination system.

E. Lime Softening Post Chlorination Metering Pumps

1. Each pump shall have the capacity of 6 GPH and shall have a minimum discharge pressure of 150 psi. Provide a total of two pumps.

F. Filter Backwash Chlorination Metering Pump

1. Provide one skid mounted duty pump with a minimum capacity of 80 GPH and a minimum discharge pressure of 175 psi.

G. Reverse Osmosis Post Chlorination Metering Pump

1. Provide one duty pump with a minimum capacity of 12 GPH and a minimum discharge pressure of 150 psi. Install pump on existing skid as indicated on the drawings. Provide any appurtenances necessary for a complete installation and a complete operable system.

H. Each metering pump shall have an integral degassing valve manifold incorporating a discharge check valve and a continuous vapor bleed port valve from the displacement head.

I. All piping, fittings, accessories, and wetted parts shall be PVC.

## 2.16 SPARE PARTS

A. The system manufacturer shall furnish a complete set of spare parts as specified herein. The spare parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long term storage.

B. Minimum numbers of spare parts to be furnished for each chemical metering pump feed system:

1. 1- complete sets maintenance kits for each chemical metering pump. Maintenance kits shall include at a minimum: diaphragm, check valve seats, gaskets and O-rings.
2. 1 – required lubricants for metering pumps
3. 1 – maintenance kit for each pressure relief valve
4. 1 – maintenance kit for each back pressure valve
5. 1 – spare bladder for each pulsation dampener
6. 1 –spare valve for each size
7. 1 –parts list for all serviceable components
8. 1 –complete set of pilot lights and fuses

## 2.17 FACTORY TESTING

A. Each chemical metering pump skid shall be completely assembled and a full operating test shall be performed by the system manufacturer at the factory. The system manufacturer shall supply the Engineer with a certified factory test report prior to shipment.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

A. Installation shall be in strict accordance with the system manufacturer's instructions and recommendations.

### 3.02 INSPECTION, STARTUP AND TESTING

- A. The system manufacturer shall furnish the services of a competent and experienced Manufacturer's Technical Representative who has complete knowledge of proper operation and maintenance of the equipment to adequately supervise the installation and testing of all equipment, as specified herein, furnished under this Contract and instruct the Owner's operating personnel in its maintenance and operation.
- B. Upon completion of installation, a full operating test shall be performed in the presence of the Owner and Engineer by the Manufacturer's Technical Representative. The Contractor shall furnish all labor, materials and equipment required for the testing.
- C. The Manufacturer's Technical Representative shall be at the job site for the following time period; travel time excluded:
  - 1. Four hours for inspection and certification of the installations.
  - 2. Eight hours to carryout performance field testing and startup and to train Owner's operation staff in operation of the systems. At least four hours shall be allocated solely to the instruction of plant personnel in operation and maintenance of the equipment. This instruction period shall be scheduled at least ten days in advance with the Owner and shall take place prior to acceptance by the Owner.
- D. Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor. The Manufacturer's Technical Representative shall sign in and out with the Engineer's Resident Representative on each day present at the job site.

END SECTION

## SECTION 13000

### PLANT SCADA CENTRAL SYSTEM UPGRADE

#### PART 1: GENERAL

##### 1.01 SCOPE OF WORK

- A. A single preapproved System Supplier shall furnish all services and equipment defined herein.
- B. The System Supplier shall provide all labor, materials, installation, programming, calibration, testing, equipment, training, O&M manuals, warranty, and incidentals that are required to furnish, install, commission, and warrant a fully integrated and functional system.
- C. The System Supplier shall design and coordinate the SCADA central system for proper operation with related existing equipment.
- D. Auxiliary and accessory devices necessary for proper system operation and performance, such as communications/network interfaces with existing equipment shall be included whether they are specified or not.
- E. The City of Lake Worth's SCADA System is existing, and all work shall be coordinated with its operating personnel to minimize impact on its daily operation. The System Supplier shall note that the SCADA system shall be kept operational at all times.
- F. Hardware shall be fabricated, assembled, installed, and placed in proper operating conditions in full conformity with the instructions and recommendations of the equipment Manufacturer as approved by the Engineer.
- G. To facilitate the Owner's future operation and maintenance, similar products shall be of the same Manufacturer.
- H. All equipment and installations shall satisfy applicable Federal, State, and local codes.
- I. Equipment removed during the course of this work shall remain the property of the Owner.
- J. All materials, equipment, labor and services necessary to achieve the monitoring and control functions described herein shall be provided in a timely manner such that the monitoring and control functions are available when the equipment is ready to be placed into service.

##### 1.02 SUBMITTALS

- A. All submittals defined herein shall be submitted for review and approval unless otherwise noted.
- B. These shop Drawings shall fully demonstrate that the equipment and services to be furnished will comply with the provisions of these specifications and shall provide a true and complete record of the equipment as manufactured and delivered. Submittals shall be bound in separate three-ring binders, with an index and sectional dividers, with all Drawings reduced to a maximum size of 11-in x 17-in for inclusion within the binder.

## C. SCADA Central System Hardware

1. This submittal shall provide complete documentation of the proposed hardware including:
  - a. A complete system block diagram(s) showing in schematic form, the interconnections between major hardware components such as; power supplies, consoles, computer and peripheral devices, telemetry equipment, local digital processors and like equipment. The block diagram shall reflect the total integration of all digital devices in the system and shall reflect any man/machine interface locations. All components shall be clearly identified with appropriate cross references to the location of each. The diagram shall reference all interconnecting cabling requirements for digital components of the system including any data communication links.
  - b. Manufacturer's device data sheet for each hardware component listing all model numbers, optional, auxiliary and optional devices that are being provided and are available. The data sheets shall be provided with an index and proper identification and cross referencing. They shall include but not be limited to the following information:
    - 1) Product (item) name used herein.
    - 2) Manufacturer 's complete model number.
    - 3) Location of the device.
    - 4) Input - output characteristics.
  - c. Equipment specification sheets which shall fully describe the device, the intended function, how it operates and its physical environmental and performance characteristics. As a minimum the specification sheets shall include the following:
    - 1) Dimensions and working clearances.
    - 2) Mounting or installation details.
    - 3) Connection diagrams.
    - 4) Electrical power requirements (volts, amps).
    - 5) Environmental characteristics.
    - 6) Performance characteristics.

## D. Digital System Software

1. The Software Functional Design submittal shall provide a complete description of the system on a functional level prior to software code development. The software shall be organized into functional subsystems. The intent of the Software Functional Design submittal shall be to describe, in detail, what functions are to be performed by each subsystem. It is not the intent of this documentation to describe the individual programs that support these functions.
2. The Software Functional Design submittal shall include, but not be limited to, the following items for each subsystem:
  - a. Subsystem Abstract - A brief overview of the subsystem which shall describe its major functions.
  - b. Technical Description - A description of all the functions to be performed by the subsystem. This description shall indicate how the functions work from a user's standpoint.

- c. Subsystem Structure - A diagram of the overall subsystem indicating major modules, data structures, and data flow. It shall also be defined whether the function is performed in the central system, a remote unit or both.
- d. Interface Structure - A diagram and/or description of the manner in which the subsystem interfaces with other subsystems.
- e. Man-Machine Interface Consideration - A detailed description of all interface between the system and the operator shall be provided. All related CRT formats shall be shown.
- f. Initialization Considerations - A description of the impact of power fail or system fail-over type restarts upon the subsystem shall be described.
- g. Proposed computer screens for the central station computer shall be provided for review and comment prior to completion of the programming. Changes shall be made as requested at no additional cost.

#### 1.03 QUALITY ASSURANCE

- A. The System Supplier shall be the following SCADA system Manufacturer:
  - 1. C.C. Controls Corporation; West Palm Beach, Florida

#### 1.04 FINAL SYSTEM DOCUMENTATION

- A. Prior to final acceptance of the system and Owner training, operating and maintenance manuals covering instruction and maintenance on each type of equipment shall be furnished.

### PART 2: PRODUCTS

#### 2.01 GENERAL

- A. All equipment and software supplied shall be standard products of the Manufacturer's latest revision, as of Contract Substantial Completion.
- B. All electronic equipment shall be FCC Class A and B approved and shall incorporate RFI protection.
- C. All equipment shall be provided with mounting hardware as required.
- D. The computer equipment shall be installed in an air-conditioned area; however, the equipment furnished shall be designed to operate satisfactorily between 60 degrees F and 85 degrees F and up to 90 percent relative humidity assuming no condensation will occur.
- E. All equipment shall be designed to operate on a 60 Hertz alternating current power source at a nominal 117 volts, plus or minus 10 percent, except where specifically otherwise noted.
- F. Equipment and components used shall be UL listed. Custom fabricated equipment shall require the entire equipment to be UL labeled.

- G. All equipment shall be designed and constructed so that in the event of a power interruption, orderly shutdown occurs and normal operation is resumed without manual resetting when power is restored.
- H. The System Supplier shall provide all hardware and software necessary to provide a fully debugged and operating system, to efficiently perform the functions specified, and to enable convenient and efficient preparation of new programs. This requirement includes all programming and software necessary to interface the system to any existing system or equipment.
- I. The software package shall be modular, primarily comprised of an integrated group of proven, standard software modules. Individual standard modules shall be designed such that adaptation to the System's specific needs would be accomplished through entry of definitive data in stored parameter tables.
- J. The System Supplier shall assume complete responsibility for the successful operation of all software and application programs provided as part of the System. All programs shall be completely debugged and operable prior to delivery of the System. The Owner shall not be required to expend any programming effort in order to achieve a fully operational system.
- K. All of the programs shall be generalized in nature such that the Owner may later add new functions. The scheduling and initiation of future application programs and the servicing of their input and output requirements, including construction of new printing formats and other system interfaces, shall be accomplished without recompiling of existing application software.
- L. All real-time executive and/or operating system software procured from sub-vendors shall be unmodified.
- M. Programmable Read Only Memory (PROM) resident software shall not include data which may change due to system reconfiguration (e.g. data I/O lists, scan tables, control algorithms, etc.)
- N. All application programs shall be provided in the form of field proven, modular software packages for monitoring and control, data collection, analysis, and short term storage, and entry of processed data into the system database. Operator input or response statements shall not require knowledge of programming languages.
- O. All software requiring a license shall be filled out by the System Supplier and documented in the Operation & Maintenance Manuals.
- P. All hardware installed to obtain the necessary I/O between the field equipment and the central station computer shall match existing equipment.
- Q. Make all wiring terminations to existing PLC's for the required I/O signals and provide a table of wire and terminal numbers versus function

## 2.02 SYSTEM HARDWARE

### A. I/O Modules

1. Provide and install additional digital and analog Input/Output Modules within the existing PLC as necessary for the project. The existing PLC is a Square-D Sy/Max 400 with two (2) square slots remaining on the existing rack. Provide and install another PLC rack including power supply and additional I/O modules as necessary for the project.

## 2.03 SYSTEM PROGRAMMING

- A. The following control strategies and parameters described herein are written descriptions of the programming required to implement the operation of the entire system. The programming shall be implemented within the central station computer as required to provide the following control and status/alarm reporting functions:

1. Chlorination System
  - a. Drive Control Switch in Auto position (DI), 7 total.
  - b. Drive running (DI), 7 total.
  - c. Drive Fail (common DI), 7 total.
  - d. Drive speed output (AI), 7 total.
  - e. Drive speed input (AO), 7 total.
  - f. Drive start/stop (DO), 7 total.
2. With the selector switch in the auto position, the Lime Softening pre-treatment chlorination metering pumps shall be paced from the surficial aquifer total raw water flow. Dosage rate to be set manually by operational staff through plant SCADA system. (This dosage rate will not be trimmed due to the long detention time through the settling basins and east clearwell before the sample point at the weir overflow box.)
3. With the selector switch in the auto position, the Reverse Osmosis post chlorination metering pumps shall be paced from the permeate total water flow. Dosage rate to be set manually by operational staff through plant SCADA system. Dosage rate to be trimmed based maintaining an operator selected set point concentration for the reverse osmosis post chlorine concentration sampling point just prior to the static mixing element in the permeate pipeline located in the pump room.
4. With the selector switch in the auto position, Lime Softening post chlorination metering pumps shall be paced from the surficial aquifer total raw water flow. Dosage rate to be set manually by operational staff through plant SCADA system. Dosage rate to be trimmed based on chlorine concentration sampling point on the high service pump discharge pipeline. (An alternate control program shall allow the dosage rate to be trimmed to meet a preset concentration based on the difference between the East Clearwell weir box sampling point and the preset value.)
5. With the selector switch in the auto position, the backwash chlorination pump shall be set to a preselected dosage rate in the plant SCADA system. The pump shall run when the backwash pump is running and stop when the backwash pump stops. An adjustable start time delay shall be included in the programing, but need not be activated initially unless desired by the operators.

6. The System Supplier shall coordinate with the Engineer and Owner regarding such items as minimum pump run speeds, etc.
- B. Once the automated chlorination system has been started up and is in full operation, a 30-day trial operational period shall start. During the trial operational period, the SCADA system programming shall be adjusted to fine tune the program operation based on engineer and operator input.

## PART 3: EXECUTION

### 3.01 GENERAL

- A. Two complete sets of approved shop drawings shall be kept at the job site during all on-site construction. Both sets shall be identically marked up to reflect any modifications made during field installation or start-up. All markings shall be verified and initialed by the Engineer or his designated representative. Following completion of installation and the field acceptance test, one set of the marked up drawings shall be provided to the Engineer, the other retained by the System Supplier for incorporation of the mark-ups into final as-built documentation.

### 3.02 TESTS (GENERAL)

- A. The System Supplier shall test all equipment at the factory prior to shipment. Unless otherwise specified in the individual specification sections, all equipment provided by the supplier shall be tested at the factory as a single fully integrated system.
- B. As a minimum, the testing shall include the following:
  1. Unwitnessed Factory Test (UFT).
  2. Field Acceptance Tests (FAT).
  3. 15-Day Site Acceptance Tests (SAT).
- C. Each test shall be in the cause and effect format. The person conducting the test shall initiate an input (cause) and, upon the system's or subsystem's producing the correct result (effect), the specific test requirement will have been satisfied.
- D. All tests shall be conducted in accordance with prior ENGINEER-approved procedures, forms, and check list. Each specific test to be performed shall be described and a space provided after it for sign off by the appropriate party after its satisfactory completion.
- E. Copies of these sign off test procedures, forms, and check lists will constitute the required test documentation.
- F. Provide all special testing materials and equipment. Wherever possible, perform tests using actual process variables, equipment, and data. Where it is not practical to test with real process variables, equipment, and data, provide suitable means of simulation. Define these simulations techniques in the test procedures.
- G. The System Supplier shall coordinate all of his testing with him, the Engineer, and the Owner.

- H. The Engineer reserves the right to test or retest all specified functions whether or not explicitly stated in the prior approved Test Procedures.
- I. The Engineer 's decision shall be final regarding the acceptability and completeness of all testing.
- J. The System Supplier shall furnish the services of servicemen, all special calibration and test equipment and labor to perform the field tests.

### 3.03 UNWITNESSED FACTORY TESTS (UFT)

- A. All SCADA central system hardware and software shall be operated for at least two days continuously without a failure to verify the system is capable of continuous operation.
- B. All deficiencies identified during tests shall be corrected and retested prior to shipment of the equipment.

### 3.04 FIELD ACCEPTANCE TEST (FAT)

- A. Once the equipment has been started up and is operating, a witnessed Field Acceptance Test shall be performed on the complete system to demonstrate that it is operating and in compliance with these Specifications. Each specified function shall be demonstrated on a paragraph-by-paragraph, and site-by-site basis.
- B. One copy of all O&M Manuals shall be made available to the Engineer at the job site both before and during testing.
- C. The system shall operate for a continuous 100 hours without failure before this test will be considered successful.

### 3.05 15-DAY SITE ACCEPTANCE TEST (SAT)

- A. After completion of the Field Acceptance Tests, the system shall be operated for a period of 15 consecutive days, under conditions of full operation, without a single non-field repairable malfunction.
- B. During this test, operating and System Supplier personnel shall be present as required. The System Supplier is expected to provide personnel for this test who have an intimate knowledge of the hardware and software of the system.
- C. While this test is proceeding, the Owner shall have full use of the system. Only operating personnel shall be allowed to operate the equipment.
- D. Any malfunction during the test shall be analyzed and corrections made by the System Supplier the Engineer and/or Owner will determine whether any such malfunctions are sufficiently serious to warrant a repeat of this test.
- E. Any malfunction, during this 15 consecutive day test period, which cannot be corrected within 24 hours of occurrence by the System Supplier's personnel, or more than two similar failures of any duration, will be considered as a non-field-repairable malfunction.
- F. Upon completion of repairs, by the System Supplier, the test shall be repeated as specified herein.

- G. In the event of rejection of any part or function, the System Supplier shall perform repairs or replacement within 90 days.
- H. All data base errors must be corrected prior to the start of each test period. The 15-day test will not be considered successful until all data base is correct.
- I. The total availability of the system shall be greater than 99.5 percent during this test period. Availability shall be defined as "Avail.=((Total Time-Down Time)÷(Total Time))\*100". Down times due to power outages or other factors outside the normal protection devices or back-up power supplies provided, shall not contribute to the availability test times above.
- J. Upon successful completion of the 15-day Site Acceptance Test and subsequent review and approval of complete system final documentation, the system shall be considered substantially complete and the one year warranty period shall commence.

### 3.06 TRAINING

- A. The cost of training programs to be conducted with Owner's personnel shall be included in the Contract price. The training and instruction, insofar as practicable, shall be directly related to the System being supplied.
- B. The System Supplier shall provide detailed manuals to supplement the training courses. The manuals shall include specific details of equipment supplied and operations specific to the project.
- C. The System Supplier shall make use of teaching aids, manuals, slide/video presentations, etc. After the training services, such materials shall be delivered to Owner.
- D. The training program shall represent a comprehensive program covering all aspects of the operation and maintenance of the system.
- E. All training schedules shall be coordinated with, and at the convenience of the Owner. Shift training may be required to correspond to the Owner's working schedule.
- F. On-Site Training: On-site (field) training shall be conducted at the Owner's site and shall provide detailed hands-on instruction to Owner's personnel covering system debugging, program modification, trouble-shooting, maintenance procedures, calibration procedures, and system operation. The training shall run at times chosen by the Owner. A total of 8 hours (1 day) of training shall be provided.

END OF SECTION

## SECTION 16050

### ELECTRICAL GENERAL PROVISIONS

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. The Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Division.

##### 1.02 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required for a complete electrical system as hereinafter specified and shown on the Drawings. Electrical work to be performed under this Contract includes, but is not limited to, the following:
  - 1. Provide and install all equipment, conduit, and wiring for the electrical work indicated on the electrical drawings in accordance with Division 16 of the specifications.
- B. The work, apparatus and materials which shall be furnished under these Specifications and accompanying Drawings shall include all items listed hereinafter and/or shown on the Drawings. Certain equipment will be furnished as specified in other Sections of these Specifications which will require wiring thereto and/or complete installation as indicated. All materials necessary for the complete installation shall be furnished and installed by the Contractor to provide complete power, communication systems, instrumentation, wiring and control systems as indicated on the Drawings and /or as specified herein.
- C. The work shall include complete testing of all equipment and wiring at the completion of the work and making any minor connection changes or adjustments necessary for the proper functioning of the system and equipment. All workmanship shall be of the highest quality; sub-standard work will be rejected.

##### 1.03 GENERAL INFORMATION

- A. Each bidder or his authorized representatives shall, before preparing his proposal, visit all areas of the site in which work under this Section is to be performed and inspect carefully the existing conditions. The submission of the proposal by the bidder shall be considered evidence that he or his representative has visited the site and noted the locations and conditions under which the work will be performed and that he takes full responsibility for a complete knowledge of all factors governing his work.
- B. It is the intent of these Specifications that the electrical system shall be suitable in every way for the service required. All material and all work which may be reasonably implied as being incidental to the work of this Section shall be furnished at no extra cost.

#### 1.04 CODES, INSPECTION AND FEES

- A. All material and installation shall be in accordance with the latest edition of the National Electrical Code and all applicable national, local and state codes.
- B. All equipment and material shall be U.L. listed.
- C. Pay all fees required for permits and inspections.

#### 1.05 TEMPORARY ELECTRICAL FACILITIES

- A. The Contractor shall furnish, install, and maintain all materials and equipment required to provide temporary light and power to perform the work of all trades during construction until work is completed. Adequate lighting and receptacle outlets for operation of hand tools shall be provided throughout the project, including trailers, field offices, etc. and shall be extended as construction progresses.
- B. All reasonable safety requirements shall be observed to protect workers and the public from shock and fire hazards.
  - 1. Ground fault circuit interrupters shall be employed in accordance with codes.
  - 2. Ground wires are required in all circuits. Ground poles are required on all outlets. All metallic cases shall be grounded.
  - 3. Raintight cabinets shall be used for all equipment in wet locations.

#### 1.06 OWNER COORDINATION

- A. The Contractor shall coordinate with the Owner all power interruptions at least 48 hours in advance and obtain permission from the Owner prior to interrupting the power.

#### 1.07 INTERPRETATION OF DRAWINGS

- A. The Drawings are not intended to show exact locations of conduit runs.
- B. All three-phase circuits shall be run in separate conduits unless otherwise shown on the Drawings.
- C. Unless otherwise approved by the Engineer conduit shown exposed shall be installed exposed; conduit shown concealed shall be installed concealed.
- D. Where circuits are shown as "home-runs" all necessary fittings and boxes shall be provided for a complete raceway installation.
- E. All wire, conduit, circuit breaker, and motor starter sizes shown on the drawings are indicative of the sizes required based upon the equipment shown. These may vary depending upon the actual equipment furnished. The Contractor shall make adjustments as required to meet the installation requirements of equipment.

- F. The locations of equipment and devices shown on the Drawings are approximate only. Exact locations shall be as approved by the Engineer during construction. Obtain in the field all information relevant to the placing of electrical work and in case of any interference with other work, proceed as directed by the Engineer and furnish all labor and materials necessary to complete the work in an approved manner.
- G. Circuit layouts shown are not intended to show the number of fittings, or other installation details. Furnish all labor and materials necessary to install and place in satisfactory operation all power, lighting, and other electrical systems shown. Additional circuits shall be installed whenever needed to conform to the specific requirements of the equipment.
- H. All floor mounted electrical equipment, including but not limited to motor control centers, transformers, control panels, etc., shall be placed on a four inch (4") concrete housekeeping pad.
- I. All connections to equipment shall be made as shown, specified, and directed and in accordance with the approved shop drawings.
- J. Provide and place all sleeves for conduits penetrating floors, walls, partitions, etc. Locate all necessary slots for electrical work and form before concrete is poured.
- K. All cutting and patching necessary throughout the existing site shall be done in a thoroughly workmanlike manner.

#### 1.08 HANDLING OF EQUIPMENT

- A. The equipment shall be kept upright at all times. When equipment has to be tilted for ease of passage through restricted areas during transportation and installation, the Manufacturer shall be required to brace the equipment suitably, to insure that the tilting does not impair the functional integrity of the equipment.

#### 1.09 COMPONENT INTERCONNECTIONS

- A. Component equipment furnished under this Specification will not be furnished as integrated systems.
- B. Analyze all systems components and their shop drawings; identify all terminals and prepare drawings or wiring tables necessary for component interconnection.

#### 1.10 MATERIALS

- A. The materials used in all systems shall be new, unused, of the manufacturer's latest design, and as hereinafter specified. All materials where not specified shall be of the very best of their respective kinds. Samples of materials or Manufacturer's Specifications shall be submitted for approval as required by the Engineer.
- B. Materials and equipment used shall be Underwriters Laboratories, Inc. listed.
- C. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. Electrical equipment shall not be stored out-of-doors.

Electrical equipment shall be stored in dry permanent shelters. If any apparatus has been damaged, such damage shall be repaired by the Contractor at his own cost and expense. If any apparatus has been subject to possible injury by water, it shall be thoroughly dried-out and put through such special tests as directed by the Engineer, at the cost and expense of the Contractor, or shall be replaced by the Contractor at his own expense.

- D. All electrical panels, enclosures, raceways, conduits, wireways, boxes, cabinets, etc., shall be fabricated of metal, Non-metallic substitutes are not acceptable. This does not apply to buried work.

#### 1.11 SHOP DRAWINGS

- A. Shop drawings shall be submitted for approval of all materials, equipment, apparatus, and other items as required by the Engineer.
- B. Shop drawings shall be submitted for all equipment supplied under Division 16 of the specifications.
- C. Prior to submittal by the Contractor, all shop drawings shall be checked for conformance with the Contract requirements. Shop drawings shall bear the date checked, checker's name and indication of approval. Provide an itemized list noting all discrepancies with the Specifications and Drawings. Shop drawings not so checked and noted shall be returned.
- D. The Engineer's check shall be only for conformance with the design concept of the project and compliance with the Specifications and Drawings.
- E. No material shall be ordered or shop work started until the Engineer's approval of shop drawings has been given.

#### 1.12 WARRANTY

- A. All equipment furnished and installed, and all work performed under Division 16 shall be guaranteed by the Contractor against defects of workmanship, materials, and proper installation for a minimum period of one (1) year from date of acceptance. This time shall be increased to the periods stated within individual specification sections as required.

#### 1.13 RECORD DRAWINGS

- A. As the work progresses, legibly record all field changes on a set of project Contract Drawings. When the project is complete, furnish a complete set of "as-built" drawings for the Project Record Documents.

#### 1.14 TESTS

- A. Test all systems in the presence of the Engineer and repair or replace all defective work. Make all necessary adjustments to the systems and instruct the Owner's personnel in the proper operation of the systems.
- B. Subsystem testing shall occur after the proper operation of protective relays and alarm and status contacts has been demonstrated or otherwise accepted by the Engineer and after process control devices have been adjusted as accurately as possible. Subsystems, in the context discussed here,

shall mean individual and groups of pumps.

1. After initial settings have been completed, each subsystem shall be operated in the manual mode and it shall be demonstrated that operation is in compliance with the Contract Documents. Once the manual mode of operation has been proven, automatic operation shall be demonstrated to verify such items as proper start and stop sequence of pumps, proper operation of standby power systems, etc.
2. Motor operated pumps shall be operated only after having been phased and tested for correct motor rotation and current draw by a representative of the pump Manufacturer. Tests shall verify status indication, and correct command control from local and remote devices.

PART 2 - PRODUCTS (not used)

PART 3 – EXECUTION (not used)

END OF SECTION

## SECTION 16110

### RACEWAYS

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Furnish and install complete raceway systems as shown on the Drawings and as specified herein.

##### 1.02 APPLICATIONS

- A. Except where otherwise shown on the Drawings, or hereinafter specified, all exposed raceways shall be rigid galvanized steel.
- B. PVC coated RGS conduit shall be used as raceways for shielded wiring.
- C. Schedule 40 PVC shall be used underground, unless otherwise noted. Transitions to exposed, outdoor locations shall be made using RGS conduit starting with the last 90 degree elbow.
- D. Schedule 80 PVC shall be used where exposed below grade, in process rooms, and in corrosive areas.
- E. All conduit of a given type shall be the product of one manufacturer.
- F. Combination expansion-deflection fittings shall be used where exposed or embedded conduits cross structure expansion joints.
- G. Liquidtight flexible metal conduit (between 18" and 36" in length) shall be used for all motor terminations and other equipment where vibration is present. All flexible conduits shall use a bonding wire unless a ground wire is included.
- H. Unless otherwise hereinafter specified or shown on the Drawings, all boxes shall be metal.

#### PART 2 - PRODUCTS

##### 2.01 RIGID CONDUIT

- A. Steel conduit shall be hot-dipped galvanized as manufactured by the Youngstown Sheet and Tube Company, Allied Tube and Conduit Corporation, Wheeling-Pittsburgh Steel Corporation, or approved equal.
- B. PVC coated rigid steel conduit shall be hot-dipped galvanized inside and out including threads. The PVC coating shall be UL listed for corrosion protection and be at least 40 mil thick. A 2 mil green urethane interior coating shall be provided. PVC coated rigid steel conduit shall be as manufactured by the Perma-Cote Company, Gilmer, Texas or approved equal.
- C. PVC conduit shall be rigid polyvinyl chloride type as manufactured by Carlon, an Indian Head Company, Phillips Petroleum Company, Triangle Pipe and Tube Company, Inc., or approved equal.

## 2.02 LIQUIDTIGHT, FLEXIBLE METAL CONDUIT, COUPLINGS AND FITTINGS

- A. Liquidtight, flexible metal conduit shall be Sealtite, Type UA, manufactured by the Anaconda Metal Hose Division, Anaconda American Brass Company, American Flexible Conduit Company, Inc., Universal Metal Hose Company, or approved equal.
- B. Fittings used with flexible conduit shall be of the screw-in type as manufactured by the Thomas and Betts Company, Crouse-Hinds Company, or approved equal.

## 2.03 FLEXIBLE COUPLINGS

- A. Flexible couplings shall be as manufactured by the Crouse-Hinds Company, Appleton Electric Company, or approved equal.

## 2.04 BOXES AND FITTINGS

- A. Combination expansion-deflection fittings shall be Type XD as manufactured by the Crouse-Hinds Company or approved equal.
- B. Pressed steel switch and outlet boxes shall be hot-dipped galvanized as manufactured by the Raco Manufacturing Company, Adalet Company, O.Z. Manufacturing Company, or approved equal.
- C. Terminal boxes, junction boxes, pull boxes, etc., shall be pressed steel unless otherwise shown on the Drawings. Boxes shall be galvanized and have continuously welded seams. Welds shall be ground smooth and galvanized. Box bodies shall be flanged and shall not have holes or knockouts. Box bodies shall not be less than 14 gauge metal and covers shall not be less than 12 gauge metal. Covers shall be gasketed and fastened with stainless steel screws. Boxes shall be as manufactured by Hoffman Engineering Company or approved equal.
- D. Cast iron boxes and fittings shall be galvanized with cast galvanized covers and corrosion-proof screws as manufactured by the Crouse-Hinds Company, Appleton Electric Company, or approved equal.
- E. Conduit hubs shall be as manufactured by Meyers Electric Products, Inc., Raco Division, Appleton Electric Company, or approved equal.
- E. Conduit wall seals shall be Type WSK as manufactured by O.Z. Electrical Manufacturing Company, or approved equal.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. No conduit smaller than ½ inch electrical trade size shall be used, nor shall any have more than four (4) 90 degree bends in any one run. Pull boxes shall be provided as required or directed. Minimum size in floor slabs shall be ¾ inch.
- B. An equipment grounding conductor sized per article 250-95 of the N.E.C. shall be installed in every raceway whether or not shown on the Drawings.

- C. All underground conduit shall be buried at least 24 inches below grade.
- D. A three (3) inch wide warning tape, red with black stenciled letters "**CAUTION - CAUTION - CAUTION ELECTRICAL LINE BURIED BELOW**" shall be installed at least 12 inches above, and along the entire length of all underground conduit.
- E. No wire shall be pulled until the conduit system is complete in all details, or in the case of concealed work, until all rough plastering or masonry has been completed.
- F. The ends of all conduits shall be tightly plugged to exclude dust and moisture while under construction.
- G. Conduit supports shall be spaced at intervals of eight (8) feet or less, as required to obtain rigid construction.
- H. Single conduits shall be supported by means of one-hole pipe clamps in combination with one-screw back plates, to raise conduits from the surface.
- I. All conduits on exposed work shall be run at right angles to and parallel with the surrounding wall or slab. No diagonal runs will be allowed. Bends in parallel conduit runs shall be concentric. All conduit shall be run perfectly straight and true.
- I. Conduit stub outs for future construction shall be provided with threaded PVC end caps at each end.
- K. All earth, sod, etc., moved during the installation of underground conduit shall be replaced by the contractor to its original state.
- L. Conduits terminating in pressed steel boxes shall have double locknuts and insulated bushings.
- M. Conduits terminating in gasketed enclosures shall be terminated with conduit hubs.
- N. Conduit wall seals shall be used for all conduits penetrating walls below grade or other location shown on the Drawings.
- O. All field cut threads on galvanized steel conduit shall be cleaned and painted with zinc-rich paint before installation.
- P. All conduits terminating through concrete shall be hot-dipped galvanized steel and painted with bitumastic from 6 inches below to 6 inches above slab.
- Q. All exposed, outdoor PVC conduits and boxes and PVC coated RGS conduits shall be painted with two (2) coats of silver paint.
- R. The ends of all conduits terminating in panels, cabinets, and equipment shall be filled with silicone gel. Filling shall be done after the cable has been pulled in order to prevent moisture and insects in the terminating enclosure.

END OF SECTION

## SECTION 16120

### WIRES AND CABLES

#### PART 1 - GENERAL

##### 1.01 SCOPE OF WORK

- A. Furnish, install and test all wire, cable, and appurtenances as shown on the Drawings and as hereinafter specified.

##### 1.02 APPLICATIONS

- A. Wire for all low voltage power and motor circuits shall be type XHHW, stranded.
- B. Single conductor wire for control, indication and metering shall be type XHHW No. 14 AWG, stranded.
- A. Wire for process instrumentation shall be shielded pairs No. 16 AWG, stranded with individual drain wires.

##### 1.03 SUBMITTALS

- A. Samples of proposed wire and cable shall be submitted for approval. Each sample shall have the size, type of insulation and voltage stencilled on the jacket.
- B. Approved samples will be sent to the project location for comparison by the Resident Engineer with the wire actually installed.
- C. Installed, unapproved wire shall be removed and replaced at no additional cost to the Owner.

#### PART 2 - PRODUCTS

##### 2.01 MATERIALS

- A. All wires and cables shall be of annealed, 98 percent conductivity, soft drawn copper conductors.
- B. All conductors No. 8 AWG and larger shall be stranded.
- C. Type XHHW shall be 600 volt cross-linked polyethylene (XLP) and type THHN/THWN shall be 600 volt as manufactured by the Hi-Tech Company, Rome Cable Corporation, The Okonite Company or approved equal.
- D. Process instrumentation wire shall be 600 volt, PVC or polyethylene insulated, aluminum/polyester tape shielded, polyvinyl chloride jacketed, type "TC" as manufactured by the American Insulated Wire Company, Belden Corporation, "Beldfoil" 9342, or approved equal.

## PART 3 - EXECUTION

### 3.01 INSTALLATION

- A. All conductors shall be carefully handled to avoid kinks or damage to insulation.
- B. Lubrications shall be used to facilitate wire pulling. Lubricants shall be U.L. listed for use with the insulation specified.
- C. Shielded instrumentation wire shall be installed from terminal to terminal with no splicing at any intermediate point.
- D. Instrumentation cables shall be separated from power and control cables in pullboxes.
- E. Shielding on instrumentation wire shall be grounded at the transmitter end only, or as directed by the supplier of the instrumentation equipment.
- F. Wire and cable connections to terminals, splices, and taps shall be made with compression connectors. Connections of insulated conductors shall be insulated and covered. All connections shall be made using materials and installation methods in accordance with instructions and recommendations of the manufacturer of the particular item of wire and cable. The conductivity of all completed connections shall be not less than that of the uncut conductor. The insulation resistance of all completed connections of insulated conductors shall be not less than that of the uncut conductor.
- G. All wire and cable shall be continuous and without splices between points of connection to equipment terminals, except a splice will be permitted by the Engineer if the length required between the points of connection exceeds the greatest standard shipping length available from the manufacturer specified or approved by the Engineer as the manufacturer of the particular item of wire and cable.
- H. Steel fish tapes and/or steel pulling cables shall not be used in PVC conduit runs.

### 3.02 TESTS

- A. All 600 volt wire insulation shall be tested with a megohm meter after installation. Tests shall be made at not less than 1,000 VDC.

END OF SECTION

**APPENDIX A**

**PALM BEACH COUNTY  
HEALTH DEPARTMENT PERMIT**

**Mission:**

To protect, promote & improve the health of all people in Florida through integrated state, county & community efforts.



**Rick Scott**  
Governor

**Celeste Philip, MD, MPH**  
State Surgeon General & Secretary

**Vision:** To be the Healthiest State in the Nation

---

## ELECTRONIC CORRESPONDENCE

**PERMITTEE:**

Julia Parham, P.E.  
Water Utilities Engineer  
City of Lake Worth  
301 College Street  
Lake Worth, FL 33460  
[jparham@lakeworth.org](mailto:jparham@lakeworth.org)

**PWS ID NUMBER:** 4500773**PERMIT NUMBER:** 138272-212-WC**DATE OF ISSUE:** 08/30/2016**EXPIRATION DATE:** 08/29/2021**COUNTY:** Palm Beach**PROJECT:** Water Treatment Plant Chlorination Improvements

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 62-550, 62-555 & 62-560. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

**Construct:**

- Installation of a triplex metering pump system for sodium hypochlorite:
  - Two metering pumps with the capacity of 6 gallons per hour and a minimum discharge pressure of 150 psi each for the post lime softening chlorination.
  - One skid mounted metering pump with the capacity of 80 gallons per hour and a minimum discharge pressure of 175 psi for the filter backwash chlorination.
  - Associated piping and controls

These modifications will not change the current rated capacity of 17.4 MGD

**In Accordance With:** Application Form DEP 62-555.900(1), and the Preliminary Design Report and engineering drawing sheets C0-1, C0-2, C1-1 through C1-3, E1-1 received July 28, 2016 and additional information received August 25<sup>th</sup>, 2016

**Located:** At the existing Lake Worth Water Treatment Plant on College Street, in the City of Lake Worth, Florida.

**To Serve:** Existing and future connections.

**Subject To:** General Conditions 1 – 15, Regulatory Conditions 1- 9, Construction Standards 1-7 and Specific Conditions 1 – 11.

---

**Florida Department of Health**

Palm Beach County, Division of Environmental Public Health  
P.O. Box 29, 800 Clematis Street, West Palm Beach, FL 33402  
PHONE: 561-837-5900 • FAX: 561-837-5294

**FloridaHealth.gov, [Flhealthpalmbeach.org](http://Flhealthpalmbeach.org)**



## **A. General Conditions**

The permittee shall be aware of and operate under the Permit Conditions below. These applicable conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes. [F.A.C. Rule 62-555.533(1)]

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times (reasonable time may depend on the nature of the concern being investigated), access to the premises where the permitted activity is located or conducted to:
  - a. Have access to and copy any records that must be kept under conditions of the permit;
  - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
  - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
  - a. A description of and cause of noncompliance; and
  - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.
9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.
11. This permit is transferable only upon Department approval in accordance with Rule 62- 4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
  - a. Determination of Best Available Control Technology (BACT)
  - b. Determination of Prevention of Significant Deterioration (PSD)
  - c. Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
  - d. Compliance with New Source Performance Standards
14. The permittee shall comply with the following:
  - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

- c. Records of monitoring information shall include:
  - i. the date, exact place, and time of sampling or measurements;
  - ii. the person responsible for performing the sampling or measurements;
  - iii. the dates analyses were performed;
  - iv. the person responsible for performing the analyses;
  - v. the analytical techniques or methods used;
  - vi. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

## **B. Regulatory Section**

1. All construction must be in accordance with this permit. Before commencing work on project changes for which a construction permit modification is required per 62-555.536(1), the permittee shall submit to the Department a written request for a permit modification. Each such request shall be accompanied by one copy of a revised construction permit application, the proper processing fee and one copy of either a revised preliminary design report or revised drawings, specifications and design data. [F.A.C. Rule 62-555.536].
2. Permitted construction or alteration of public water supply systems must be supervised during construction by a professional engineer registered in the State of Florida if the project was designed under the responsible charge of a professional engineer licensed in the State of Florida. The permittee must retain the service of a professional engineer registered in the State of Florida to observe that construction of the project is in accordance with the engineering plans and specifications as submitted in support of the application for this permit. [F.A.C. Rule 62-555.520(3)].
3. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoe remains, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at 850.245.6333 or 800.847.7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources and the permitting agency. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.
4. If delays will cause project completion to extend beyond the expiration date of this permit, the permittee shall submit to the Department a request to extend the expiration date of this permit including the appropriate processing fee. This request shall specify the reasons for the delay and shall be submitted to the Department for approval prior to the expiration date of this permit. Note that no specific construction permit shall be extended so as to remain in effect longer than five years. [F.A.C. Rule 62-555.536(4)].

5. In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. Persons proposing to transfer this permit must apply jointly for a transfer of the permit within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service by the Department using form, 62-555.900(8), Application for Transfer of a PWS Construction Permit along with the appropriate fee. [F.A.C. Rule 62-555.536(5)]
6. This permit satisfies Drinking Water permitting requirements only and does not authorize construction or operation of this facility prior to obtaining all other necessary permits from other program areas within the Department, or required permits from other state, federal, or local agencies.
7. This permit is for CONSTRUCTION ONLY of the distribution system project. This permit shall not infer that the clearance necessary for connection will be granted. Any such clearance shall be granted only when the connection point has been permitted and cleared for use by the Department and the public water system to which the water main extension will be connected, has the capacity necessary to meet the design water demands of all customers to be served by the water main extension. Partial clearance may be granted, if required.
8. If gasoline contamination is found at the construction site, work shall be stopped and the proper authorities notified. With the approval of the Department, ductile iron pipe and fittings, and solvent resistant gaskets materials shall be used in the contaminated area. The ductile pipe shall be used in the contaminated area. The ductile iron pipe shall extend 100 feet beyond any solvent noted. Any contaminated soil that is excavated shall be placed on an impermeable mat, covered with waterproof covering, and held for disposal. If the site cannot be properly cleaned, then consultation with the Department is necessary prior to continuing with the project construction.
9. This permit does not constitute approval of construction on jurisdictional wetland areas; therefore such approval must be obtained separately from the Water Management District or from DEP ERP Section, as applicable, Permittee shall provide a copy of the permit approval to the Department if water main installation involves activities on wetlands.

### **C. Construction Standards**

1. All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform with National Sanitation Foundation (NSF) International, Water Chemicals Codex, Food Chemicals Codex, American Water Works Association (AWWA) Standards and the Food and Drug Administration, as provided in Rule 62-555.320(3), F.A.C.
2. Water supply facilities, including mains, pipe, fittings, valves, fire hydrants and other materials shall be installed in accordance with the latest applicable AWWA Standards and Department rules and regulations.
3. The installation or repairs of any public water system, or any plumbing in residential or nonresidential facilities providing water for human consumption, which is connected to a public water system shall be lead free in accordance with Rule 62-555.322, F.A.C.

4. When any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of Federal Asbestos Regulation and Florida DEP requirements. **For specific requirements applicable to AC pipes, the permittee should contact the Air and Waste Management section at DOH Palm Beach County prior to commencing any such activities at (561) 837-5900 #3. Please be aware that a notification is required to be submitted to the Department for a regulated project**
5. Permittee shall maintain vertical clearance and horizontal separation between water mains and sanitary sewers, storm sewers, etc. unless approved otherwise by the Department, as provided in Rule 62-555.314, F.A.C., and Section 8.6 of *Recommended Standards for Water Works*, a manual adopted by reference in Rule 62-555.330(3), F.A.C.
6. The new or altered aboveground piping at the drinking water treatment plant shall be color coded and labeled as recommended in Section 2.14 of "Recommended Standards for Water Works, 1997 Edition". [F.A.C. Rule 62-555.320(10)]
7. Permittee shall ensure that there shall be no cross-connection with any non-potable water source in accordance with Rule 62-555.360, F.A.C.

#### D. Specific Conditions

1. All construction must be in accordance with this permit. Before commencing work on project changes for which a construction permit modification is required per 62-555.536(1), the permittee shall submit to the Department a written request for a permit modification. Each such request shall be accompanied by one copy of a revised construction permit application, the proper processing fee and one copy of either a revised preliminary design report or revised drawings, specifications and design data. [F.A.C. Rule 62-555.536].
2. Permitted construction or alteration of public water supply systems must be supervised during construction by a professional engineer registered in the State of Florida if the project was designed under the responsible charge of a professional engineer licensed in the State of Florida. The permittee must retain the service of a professional engineer registered in the State of Florida to observe that construction of the project is in accordance with the engineering plans and specifications as submitted in support of the application for this permit. [F.A.C. Rule 62-555.520(3)].
3. This permit satisfies Drinking Water permitting requirements only and does not authorize construction or operation of this facility prior to obtaining all other necessary permits from other program areas within the Department, or required permits from other state, federal, or local agencies.
4. All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform with National Sanitation Foundation (NSF) International, Water Chemicals Codex, Food Chemicals Codex, American Water Works Association (AWWA) Standards and the Food and Drug Administration, as provided in Rule 62-555.320(3), F.A.C.
5. Water supply facilities, including mains, pipe, fittings, valves, fire hydrants and other materials shall be installed in accordance with the latest applicable AWWA Standards and Department rules and regulations. The system shall be pressure and leak tested in accordance with AWWA Standard C600 C603, or C605, as applicable, and disinfected in accordance with AWWA Standard C651-653, as well as in accordance with Rule 62-555.340, F.A.C.

6. Permittee shall maintain vertical clearance and horizontal separation between water mains and sanitary sewers, storm sewers, etc. unless approved otherwise by the Department, as provided in Rule 62-555.314, F.A.C., and Section 8.6 of *Recommended Standards for Water Works*, a manual adopted by reference in Rule 62-555.330(3), F.A.C.
7. The new or altered aboveground piping at the drinking water treatment plant shall be color coded and labeled as recommended in Section 2.14 of "Recommended Standards for Water Works, 1997 Edition". [F.A.C. Rule 62-555.320(10)]
8. The permittee must instruct the engineer of record to request system clearance from the Department within sixty (60) days of completion of construction, testing and disinfecting the system. Bacteriological test results shall be considered unacceptable if the test were completed more than 60 days before the Department received the results. [F.A.C. Rule 62-555.340(2)(c)]
9. Permitted construction or alteration of a public water system may not be placed into service until a letter of clearance has been issued by this Department. [F.A.C. Rule 62-555.345]
10. Prior to placing this project into service, Permittee shall submit, at a minimum, all of the following to the Department for evaluation and approval for operation, as provided in Rules 62-555.340 and 62-555.345, F.A.C.:
  - a. the engineer's *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components Into Operation* {DEP Form 62-555.900(9)};
  - b. certified record drawings, if there are any changes noted for the permitted project.
  - c. two consecutive days of satisfactory bacteriological analytical results (see paragraph 11 below).
  - d. copy of a satisfactory pressure test of the process piping performed in accordance with AWWA Standards. [F.A.C. Rule 62-555.320(21)(a)(1)]

## 11. Bacteriological Testing

The new facilities shall be cleaned, disinfected, and bacteriologically cleared in accordance with Chapter 62-555, F.A.C. The bacteriological clearance data representative of the distribution system (in accordance with the instructions for Bacteriological Sampling Locations shown below) shall be submitted to the Department with the engineer's certification of construction completion. Sampling shall be performed by an employee of a State certified laboratory or a certified operator per PBC ECR-II. [Section 62-555.340 and 62-555.315(6)(b), F.A.C.]

**Bacteriological Sampling Locations:** Copies of satisfactory bacteriological analyses taken from locations within the distribution system or water main extension to be cleared, in accordance with Rules 62-555.315 (6), 62-555.340 and 62-555.330, F.A.C. and American Water Works Association (AWWA) Standard C 651-92 as follows:

- *The endpoint of the proposed addition;*
- *Any water lines branching off a main extension;*
- *Every 1,200 feet of water main;*
- *Each location shall be sampled on two separate days (at least 6 hours apart) with sample point locations and chlorine residual readings **clearly indicated** on the report and/or drawings.*
- *Bacteriological sample results will be considered unacceptable if the tests were completed more than 60 days before the Department receives the results.*

Issued This 30<sup>th</sup> Day of August, 2016.

STATE OF FLORIDA DEPARTMENT OF HEALTH  
PALM BEACH COUNTY



Alina M. Alonso, MD, Director

c: Engineer-of-Record: John R. Leemon, P.E.  
Florida DEP: Diane Pupa



# APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

See page 4 for instructions.

## I. General Project Information

A. Name of Project: Water Treatment Plant Chlorination System Improvements

B. Description of Project and Its Purpose:

This project consists of installation of a triplex metering pump system for feeding sodium hypochlorite, including piping, valves, flow meters, controls, and appurtenances. Two pumps (one as backup) will feed sodium hypochlorite to the lime softening process post chlorination application point. The third metering pump will feed sodium hypochlorite to the filter backwash.

C. Does project create a "new system" as described under subsection 62-555.525(1), F.A.C.?  Yes, and a completed copy of Form 62-555.900(20), New Water System Capacity Development Financial and Managerial Operations Plan, is attached.  No.

D. Location of Project

1. County Where Project Located: Palm Beach

2. Description of Project Location:

City of Lake Worth Water Treatment Plant

3. Latitude and Longitude of Each New Treatment Plant and Each New Raw Water Source (attach additional sheets if necessary):

Name of New Treatment Plant or Raw Water Source	Latitude	Longitude
N/A	° ' "N	° ' "W
	° ' "N	° ' "W
	° ' "N	° ' "W
	° ' "N	° ' "W
	° ' "N	° ' "W

E. Estimate of Cost to Construct Project: \$200,000

F. Estimate of Dates for Starting and Completing Construction of Project: Oct. 2016 and May 2017

G. Applicant

PWS/Company Name: <u>City of Lake Worth</u>		PWS Identification No.: <u>*4500773</u>	
PWS Type: <input checked="" type="checkbox"/> Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/> Consecutive			
Contact Person: <u>Julia Parham, P.E.</u>		Contact Person's Title: <u>Water Utilities Engineer</u>	
Contact Person's Mailing Address: <u>301 College Street</u>			
City: <u>Lake Worth</u>		State: <u>FL</u>	Zip Code: <u>33460</u>
Contact Person's Telephone Number: <u>(561) 586-1798</u>		Contact Person's Fax Number: <u>(561) 533-7372</u>	
Contact Person's E-Mail Address: <u>jparham@lakeworth.org</u>			

\* This information is required only if the applicant is a public water system (PWS).

H. Public Water System (PWS) Supplying Water to Project

PWS Name: <u>City of Lake Worth Water Treatment Plant</u>		PWS Identification No.: <u>4500773</u>	
PWS Type: <input checked="" type="checkbox"/> Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/> Consecutive			
PWS Owner: <u>City of Lake Worth</u>			
Contact Person: <u>Julia Parham, P.E.</u>		Contact Person's Title: <u>Water Utilities Engineer</u>	
Contact Person's Mailing Address: <u>301 College Street</u>			
City: <u>Lake Worth</u>		State: <u>FL</u>	Zip Code: <u>33460</u>
Contact Person's Telephone Number: <u>(561) 586-1798</u>		Contact Person's Fax Number: <u>(561) 533-7372</u>	
Contact Person's E-Mail Address: <u>jparham@lakeworth.org</u>			

## APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

Project Name: WTP Chlorination System Improvements	Applicant: City of Lake Worth
--	-------------------------------

**I. Public Water System (PWS) that Will Own Project after It Is Placed into Permanent Operation**

PWS Name: City of Lake Worth		PWS Identification No.:* 4500773	
PWS Type:* <input checked="" type="checkbox"/> Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/> Consecutive			
PWS Owner: City of Lake Worth			
Contact Person: Julia Parham, P.E.		Contact Person's Title: Water Utilities Engineer	
Contact Person's Mailing Address: 301 College Street			
City: Lake Worth		State: FL	Zip Code: 33460
Contact Person's Telephone Number: (561) 586-1798		Contact Person's Fax Number: (561) 533-7372	
Contact Person's E-Mail Address: jparham@lakeworth.org			

\* This information is required only if the owner/operator is an existing PWS.

**J. Professional Engineer(s) or Other Person(s) in Responsible Charge of Designing Project\***

Company Name: Mock, Roos & Associates, Inc.		
Designer(s): John R. Leemon, P.E.		Title(s) of Designer(s): Sr. Project Mgr.
Qualifications of Designer(s):		
<input checked="" type="checkbox"/> Professional Engineer(s) Licensed in Florida – License Number(s): 41645		
<input type="checkbox"/> Public Officer(s) Employed by State, County, Municipal, or Other Governmental Unit of State†		
<input type="checkbox"/> Plumbing Contractor(s) Licensed in Florida – License Number(s):^		
Mailing Address of Designer(s): 5720 Corporate Way		
City: West Palm Beach		State: FL Zip Code: 33407
Telephone Number of Designer(s): (561) 683-3113 x-258		Fax Number of Designer(s): (561) 478-7248
E-Mail Address(es) of Designer(s): john.leemon@mockroos.com		

\* Except as noted in paragraphs 62-555.520(3)(a) and (b), F.A.C., projects shall be designed under the responsible charge of one or more professional engineers licensed in Florida.

† Attach a detailed construction cost estimate showing that the cost to construct this project is \$10,000 or less.

^ Attach documentation showing that this project will be installed by the plumbing contractor(s) designing this project, documentation showing that this project involves a public water system serving a single property and fewer than 250 fixture units, and a detailed construction cost estimate showing that the cost to construct this project is \$50,000 or less.

**II Certifications**

**A. Certification by Applicant**

I am duly authorized to sign this application on behalf of the applicant identified in Part I.G of this application. I certify that, to the best of my knowledge and belief, this project complies with Chapter 62-555, F.A.C., and provides assurance of compliance with Chapter 62-550, F.A.C. I also certify that construction of this project has not begun yet.

Signature and Date	Julia Parham, P.E. Printed or Typed Name	Water Utilities Engineer Title
--------------------	---	-----------------------------------

**B. Certification by PWS Supplying Water to Project**

I am duly authorized to sign this application on behalf of the PWS identified in Part I.H of this application. I certify that said PWS will supply the water necessary to meet the design water demands for this project. I certify that, to the best of my knowledge and belief, said PWS's connection to this project will not cause said PWS to be, or contribute to said PWS being, in noncompliance with Chapter 62-550 or 62-555, F.A.C. I also certify that said PWS has reviewed the preliminary design report or drawings, specifications, and design data for this project and that said PWS considers the connection(s) between this project and said PWS acceptable as designed.

• Name(s) of Water Treatment Plant(s) to Which this Project Will Be Connected: City of Lake Worth Water Treatment Plant

• Total Permitted Maximum Day Operating Capacity of Plant(s), gpd: 17,400,000

• Total Maximum Day Flow at Plant(s) as Recorded on Monthly Operating Reports During Past 12 Months, gpd: ~~5,913,000~~ 6,190,000

Signature and Date	Julia Parham, P.E. Printed or Typed Name	Water Utilities Engineer Title
--------------------	---	-----------------------------------

## APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

Project Name: WTP# High Service Pump Replacement	Applicant: City of Lake Worth
--	-------------------------------

**C. Certification by PWS that Will Own Project after It Is Placed into Permanent Operation**

I am duly authorized to sign this application on behalf of the PWS identified in Part I.I of this application. I certify that said PWS will own this project after it is placed into permanent operation. I also certify that said PWS has reviewed the preliminary design report or drawings, specifications, and design data for this project and that said PWS considers this project acceptable as designed.

	7/13/16	Julia Parham, PE	Water Utilities Engineer
Signature and Date		Printed or Typed Name	Title

**D. Certification by Professional Engineer(s) in Responsible Charge of Designing Project\***

I, the undersigned professional engineer licensed in Florida, am in responsible charge of preparing the preliminary design report or drawings, specifications, and design data for this project. I certify that, to the best of my knowledge and belief, the design of this project complies with Chapter 62-555, F.A.C., and provides assurance of compliance with Chapter 62-550, F.A.C.

Signature, Seal, and Date:
Affix Seal
7/12/16
Printed/Typed Name: John R. Leemon, P.E.
License Number: 41648
Portion of Engineering Document(s) for Which Responsible: All

Signature, Seal, and Date:
Affix Seal
Printed/Typed Name:
License Number:
Portion of Engineering Document(s) for Which Responsible:

Signature, Seal, and Date:
Affix Seal
Printed/Typed Name:
License Number:
Portion of Engineering Document(s) for Which Responsible:

Signature, Seal, and Date:
Affix Seal
Printed/Typed Name:
License Number:
Portion of Engineering Document(s) for Which Responsible:

*\* Except as noted in paragraphs 62-555.520(3) (a) and (b), F.A.C., projects shall be designed under the responsible charge of one or more professional engineers (PEs) licensed in Florida. If this project is being designed under the responsible charge of one or more PEs licensed in Florida, Part II.D of this application shall be completed by the PE(s) in responsible charge. If this project is not being designed under the responsible charge of one or more PEs licensed in Florida, Part II.D does not have to be completed.*

## APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

INSTRUCTIONS: This application shall be completed and submitted by persons proposing to construct or alter public water system components unless such proposed construction or alteration is permitted under the Department of Environmental Protection's (DEP's) "General Permit for Construction of Water Main Extensions for Public Water Systems," in which case Form 62-555.900(7) is to be completed and submitted, or under the DEP's "General Permit for Construction of Lead or Copper Corrosion Control, or Iron or Manganese Sequestration, Treatment Facilities for Small or Medium Public Water Systems," in which case Form 62-555.900(18) is to be completed and submitted. Complete and submit one copy of this application to the appropriate DEP District Office or Approved County Health Department (ACHD) along with payment of the proper application processing fee and one copy of the following information:

- either a preliminary design report or drawings, specifications, and design data (the preliminary design report or drawings, specifications, and design data shall contain all pertinent information required under subsection 62-555.520(4), F.A.C.); and
- the Florida Public Service Commission (FPSC) certificate of authorization to provide water service if the project involves construction of a new public water system subject to the jurisdiction of the FPSC.

All information provided on this application shall be typed or printed in ink. Application processing fees are listed in paragraph 62-4.050(4) (n), F.A.C. Checks for application processing fees shall be made payable to the Department of Environmental Protection or to the appropriate ACHD. Preliminary design reports, drawings, specifications, and design data prepared under the responsible charge of one or more professional engineers licensed in Florida shall be signed, sealed, and dated by the professional engineer(s) in responsible charge. NOTE THAT A SEPARATE APPLICATION AND A SEPARATE APPLICATION PROCESSING FEE ARE REQUIRED FOR EACH NON-CONTIGUOUS PROJECT.\*

\* *Non-contiguous projects are projects that are neither interconnected nor located nearby one another (i.e., on the same site, on adjacent streets, or in the same neighborhood).*