

**CITY OF FAIRHOPE
FAIRHOPE, ALABAMA**

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

**COUNTY ROAD 13 AND HWY 104 WATER MAIN IMPROVEMENTS
AND SOUTH DRIVE BOOSTER STATION UPGRADE**



Fairhope Public Utilities



THOMPSON ENGINEERING PROJECT 12-2111-0072

MARCH 2013



INVITATION FOR BIDS

Sealed bids, subject to the conditions contained herein, will be received by the City of Fairhope until 10:00 a.m., Local Time, April 11, 2013, and then publicly opened and read at the City of Fairhope Public Works Building, 555 South Section Street, Fairhope, Alabama for furnishing all labor and materials and performing all work for construction of "County Road 13 and Hwy 104 Water Main Improvements and South Drive Booster Station Upgrade", Thompson Engineering Project 12-2111-0072, in Fairhope, Alabama. The Work consists of installation of water mains and upgrade to an existing booster station in Fairhope, Alabama. Refer to the Project Specifications for a general overview of the project requirements.

All bidders are encouraged to attend the pre-bid meeting to be held at 10:00 a.m., local time, on March 27th, 2013 at the Public Works Building, 555 South Section Street, Fairhope, Alabama, 36532. For additional directions, telephone – 850-202-3030 (Micah Jones – Thompson Engineering), or 251-928-8003 (Dan McCrory – City of Fairhope, Alabama).

Plans and Specifications may be examined at the office of Thompson Engineering, 2970 Cottage Hill Road, Suite 190, Mobile, Alabama (ask for Dana Glass, 251-665-5530); or plans and specs may be viewed online with the McGraw-Hill Construction – Dodge Network.

Copies of the Contract Documents (Plans, Specifications, and Proposal Documents) may be obtained at the office of Thompson Engineering, Attention: Dana Glass, 2970 Cottage Hill Road, Suite 190, Mobile, Alabama 36606 upon payment of \$50.00 for each set, which includes shipping and handling by U.S. Mail. Return of Plans and Specifications are not required and amount paid for same is non-refundable.

The Owner reserves the right to waive any informalities, or to reject any or all bids, and to award the contract to the lowest, responsible, responsive bidder. All bidders must comply with requirements of the Contractor's licensing law of the State of Alabama and be certified for the type of work on which the proposal is submitted.

Guarantee will be required with each bid as follows: At least 5 percent of the amount of the bid in the form of a certified check or Bid Bond payable to City of Fairhope - Fairhope, Alabama.

Contract Bond (Performance Bond) will be required as follows: 100 percent of the Contract Price. Labor and Material Bond (Payment Bond) will be required as follows: 100 percent of Contract Price.

Bids must be submitted upon the standard forms furnished by City of Fairhope - Fairhope, Alabama.

Envelope containing bids must be sealed, marked, addressed as follows and delivered to The City of Fairhope Public Works Building, 555 South Section Street, Fairhope, Alabama, 36532: "Bid for the County Road 13 and Hwy 104 Water Main Improvements and South Drive Booster Station Upgrade", Thompson Engineering Project 12-2111-0072, in the City of Fairhope, Alabama."

The City of Fairhope – Fairhope, Alabama reserves the right to reject any or all bids or to waive any informality in the bidding.

No bid shall be withdrawn for a period of 40 days after the opening of bids without the consent of The City of Fairhope – Fairhope, Alabama.

THE CITY OF FAIRHOPE
TIMOTHY M. KANT, MAYOR

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INSTRUCTIONS TO BIDDERS

ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered. The Issuing Office is Thompson Engineering, Inc., 2970 Cottage Hill Road, Suite 190, Mobile, AL 36606.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the advertisement or invitation to bid may be obtained from the Issuing Office of Thompson Engineering, Attention Dana Glass (251-666-2443). The deposit will not be refunded.

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

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

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.

A. Each Bidder must be skilled and regularly engaged in the general class or type of work called for under this Contract and must be licensed in accordance with provisions of the State of Alabama. A statement setting forth its experience and business standing shall be submitted, with this Proposal. It is the intention of the Owner to award the Contract only to a Bidder who has furnished satisfactory evidence that it has the requisite experience and ability in this class of work, and that it has the sufficient capital, facilities, and plant to enable him to prosecute it successful and promptly and to complete it within the time named in the Contract. In determining the degree of responsibility to be credited to the Bidder, the Owner will weigh any evidence that the Bidder has satisfactorily performed other contracts of like nature and magnitude at similar rates of progress. Bidders must submit such evidence with their proposals.

B. Bidder must be prepared to submit additional Owner-requested qualifications within 10 working days of said request.

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- 3.02 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

- A. The Supplementary Conditions identify:
1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous 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).
- B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

- A. Information and data shown or indicated in the Bidding Documents with respect to existing 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, including Owner, or others.

4.03 *Hazardous Environmental Condition*

- A. The Supplementary Conditions identify any reports and drawings known to Owner relating to a Hazardous Environmental Condition identified at the Site.
- B. Copies of reports and drawings referenced in Paragraph 4.03.A will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.06 of the General Conditions has been identified and established in Paragraph 4.06 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

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- 4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 4.06 of the General Conditions.
- 4.05 Prospective Bidders may visit the booster station site by appointment only. Such arrangements can be made by calling Dan McCrory, Superintendent, at telephone no. (251) 928-8003. On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.
- 4.06 A. Reference is made to Article 7 of the Supplementary Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of contract documents (other than portions thereof related to price) for such other work.
- B. Paragraph 6.13.C of the General Conditions indicates that if an Owner safety program exists, it will be noted in the Supplementary Conditions.
- 4.07 It is the responsibility of each Bidder before submitting a Bid to:
- A. examine and carefully study the Bidding Documents, and the other related data identified in the Bidding Documents;
- B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have

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been identified in Paragraph 4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in the Paragraph 4.06 of the Supplementary Conditions as containing reliable "technical data";

- E. consider the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;
- F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and
- I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 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 Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 – PRE-BID CONFERENCE

5.01 A pre-Bid conference will be held at 10:00 a.m. local time on March 27th at Public Works Building, 555 South Section Street, Fairhope, AL. Representatives of Owner and

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Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 – SITE AND OTHER AREAS

- 6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than four (4) days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

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ARTICLE 8 – BID SECURITY

- 8.01 The amount of the bid security is stated in the Advertisement for Bids. Bid must be accompanied by Bid security made payable to Owner in the form of a certified check, bank money order, or a Bid bond (example form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 10 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults. The bid security of the next two lowest Bidders may be retained by Owner until the successful Bidder has fully executed the Contract Documents with the Owner and furnished all required documents with the signed Contract Documents, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

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

ARTICLE 10 – LIQUIDATED DAMAGES

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

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or “or-equal” items. Whenever it is specified or described in the Bidding Documents 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.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS AND OTHERS

- 12.01 If the Bid Form requires the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so

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requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

- 12.02 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, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents.
- 13.02 All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each Bid item listed therein. In the case of optional alternatives the words “No Bid,” “No Change,” or “Not Applicable” may be entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown.
- 13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown.
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.

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- 13.06 A Bid by an individual shall show the Bidder's name and official address.
- 13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.08 All names shall be printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID; COMPARISON OF BIDS

14.01 *Lump Sum*

- A. Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate. In the comparison of Bids, alternates will be applied in the same order as listed in the Bid form.

14.02 *Unit Price*

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

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14.03 Allowances

- A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 11.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents.
- 15.02 Each bid and accompanying data shall be enclosed in a sealed opaque envelope or wrapping, addressed to City of Fairhope Public Works Building, 555 South Section Street, Fairhope, Alabama, and identified on the outside with the Bidder's name and with the words "County Road 13 and Hwy 104 Water Main Improvements and South Drive Booster Station Upgrade", Thompson Engineering Project 12-2111-0072 in Fairhope, AL. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof. A mailed Bid shall be addressed to Mr. Dan McCrory, Superintendent, City of Fairhope Public Works Building, 555 South Section Street, Fairhope, AL 36532.
- 15.03 Bidder shall assume full responsibility for timely delivery at the location designated for receipt of bids. Oral, telephone, telegraph or telecopy bids are invalid and will not receive consideration.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.02 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the Advertisement or Invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the

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amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

- 17.02 An abstract of the amounts of the base Bid and major alternates will be made available to Bidders within seven days after the date of the Bid opening.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

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

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

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- 19.07 If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within forty-five (45) days after the day of Bid opening.
- 19.08 Owner reserves the right to award or exclude any portion of the bid as deemed appropriate and in the best financial interest of the Owner.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents which are identified in the Agreement as attached thereto. Within 10 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within ten days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

END OF SECTION 000200

SECTION 000400

BID FORM

TO: CITY OF FAIRHOPE

ATTENTION: MAYOR TIMOTHY M. KANT

FOR: COUNTY ROAD 13 AND HWY 104 WATER MAIN IMPROVEMENTS AND
SOUTH DRIVE BOOSTER STATION UPGRADE

SUBMITTED BY: (State full name and address of Bidder)

_____ A corporation
_____ A partnership
_____ An individual

Person to contact for additional information on this submittal:

Name _____

Address _____

Phone _____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Bid is made without any connection or collusion with any person making another bid on this Contract.

The Bidder certifies (a) that this bid is genuine and is 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; (b) that he has not directly or indirectly induced or solicited any Bidder to put in a false claim or sham bid; (c) that he has not solicited or induced any person, firm, or corporation to refrain from bidding; and (d) that he has not sought by collusion to obtain for himself any advantage or any other Bidder or over Owner.

Bidder accepts all of the terms and conditions of the ADVERTISEMENT FOR BIDS and Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for **forty (40)** days after the day of Bid opening. Bidder will sign and submit the Contract with the Bonds and other documents as required by the Contract Documents.

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BID FORM

Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, Site, Locality, all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

Bidder has obtained and assumes responsibility for obtaining and carefully examining all reports and drawings of subsurface and other conditions and drawings of physical conditions at the Site.

Bidder has reviewed and checked all available 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.

Bidder has given Engineer timely written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents or other information made available to Contractor and the written resolution thereof by Engineer is acceptable to Bidder.

Bidder further declares and agrees, if this Bid is accepted, to enter into an Agreement [CONTRACT] in the form attached to perform all Work, including the assumption of all obligations, duties, and responsibilities necessary to the successful completion of the Contract and the furnishing of all materials and equipment required to be incorporated in and form a permanent part of the Work; tools, equipment, supplies, transportation, facilities, labor, superintendence, and services required to perform the Work; and Bonds, insurance and submittals; all as indicated or specified in the Contract Documents.

The undersigned Bidder hereby expressly acknowledges its understanding of and its agreement to comply during the performance of the Work resulting from this Bid.

The undersigned Bidder agrees that the description under each item, being briefly stated, implies, although it does not mention, all incidentals and that the prices stated are intended to cover all such work, materials and incidentals as constitute Bidder's obligations as described in the Specifications and any details not specifically mentioned, but evidently included in the Contract shall be compensated for in the item in which it is most logically included.

CONTRACT COMPLETION TIME

The Bidder agrees to complete all Work as specified in the Contract Documents within **one hundred (100)** calendar days after the date of the Notice to Proceed.

BID SECURITY

This Bid is accompanied by the required bid security as noted in the Invitation to Bid in the form of a Cashiers Check or Bid Bond issued by a rated company, licensed to do business in the State of Alabama.

SECTION 000400

BID FORM

ADDENDA

The undersigned Bidder acknowledges receipt of the following Addenda, which have been considered in preparation of this Bid:

No. _____ Dated _____
No. _____ Dated _____
No. _____ Dated _____

DESIGNATION OF SUBCONTRACTORS

The undersigned Bidder has set forth below the name and the location of subcontractors who may render service to the undersigned in or about the construction of the Work to be performed under the Contract Documents to which the attached Bid is responsive, and for which the portion of the Work which will be done by each subcontractor is in excess of three percent [one-half of one percent of the undersigned's total bid].

PORTION OF WORK	SUBCONTRACTOR	LOCATION PLACE OF BUSINESS
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

SECTION 000400

BID FORM

BID ITEMS

ITEM	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENSION
1	Mobilization	1	LS		
2	Remove and Replace Concrete Ditch	10	LF		
3	12" C900 PVC	5270	LF		
4	16" C905 PVC	7225	LF		
5	Directional Bore 16" PE (DR 11)	680	LF		
6	Directional Bore 12" PE (DR 11)	858	LF		
7	Ductile Iron Fittings	4215	LB		
8	8" DI Pipe	22	LF		
9	12" DI Pipe	204	LF		
10	16" DI Pipe	255	LF		
11	Fire Hydrant Assembly	10	EA		
12	12" Gate Valve and Box	2	EA		
13	14" x 16" Tapping Sleeve and Valve	1	EA		
14	12" x 12" Tapping Sleeve and Valve	2	EA		
15	10" X 12" Tapping Sleeve and Valve	1	EA		
16	Jack and Bore 20" Steel Casing	64	LF		
17	Jack and Bore 24" Steel Casing	540	LF		
18	Concrete for Water Line Construction (Thrust Blocks)	15	CY		
19	Joint Restraints (Megalugs)	32	EA		
20	Traffic Control	1	LS		
21	Flushing, Disinfection, and Testing	14492	LF		
22	Seeding & Mulching	1	AC		
23	No. 12 Copper Tracer Wire	14492	LF		
24	Pressure Sustaining/Pressure Relief Valve w/ Concrete Vault	1	EA		
25	Furnish and Install Pumps, Control Panel, Skid Plate, Valves, Etc in Pump House	1	LS		
26	Furnish and Install Garage Door	1	LS		
27	Bypass Pump	10	DAY		
28	Remove Existing Pumps, Skid Plate, and Control Panel	1	LS		
29	Aggregate Surfacing	20	CY		
30	Remove/Replace Asphalt Driveways/Roadways	434	SY		
31	Air Relief Valve	3	EA		
32	Borrow Excavation (Contingency)	500	CY		
33	Asphalt Driveway at Pump House	26	SY		
34	Remove Hatch and Repair Roof at Pump House	1	LS		
35	Installation of Conduit and Conductors	1	LS		

TOTAL BID AMOUNT: _____

SECTION 000400

BID FORM

SIGNATURE OF BIDDER

Company Name _____

Signature _____

Title _____

Additional Signature, if required _____

If corporation, State in which incorporated _____

SEAL & By _____

ATTEST

Title _____

Contractor's Alabama License Number

Bidder's Address: _____

City, State & Zip: _____ Telephone No.: _____

If Bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of those authorized to sign Contracts on behalf of the corporation. An affidavit giving the principal the right to sign the Contract must accompany the executed Contract. If Bidder is a partnership, the true name of the partner or partners authorized to sign Contracts on behalf of the partnership shall be placed above. If Bidder is an individual, the individual's signature shall be placed above.

END OF SECTION 000400

SECTION 000430

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That we, _____
(hereinafter called the "Principal"), as Principal, and the _____
_____ of _____
a corporation duly organized under the laws of the State of _____(hereinafter called the
"Surety"), as Surety, are held and firmly bound unto **City of Fairhope**, hereinafter called the
"Owner", in the sum of _____ Dollars (\$_), for the payment of which
sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs,
executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for:

COUNTY ROAD 13 AND HWY 104 WATER MAIN IMPROVEMENTS
AND SOUTH DRIVE BOOSTER STATION UPGRADE
Thompson Engineering Project 12-2111-0072

NOW, THEREFORE, if the Owner shall accept the bid of the Principal and the Principal shall enter into a Contract with the Owner in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay the Owner the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

SECTION 000430

BID BOND

Signed and sealed this _____ day of _____ A.D., 2013

(Principal)

(Title)

(SEAL)

(Surety)

(By)

(SEAL)

END OF SECTION 000430

SECTION 000450

BIDDER'S QUALIFICATIONS

SUBMITTED TO: Timothy M. Kant, Mayor
OWNER: City of Fairhope
ADDRESS: 555 S. Section Street
Fairhope, AL 36532

SUBMITTED BY: _____
NAME: _____
ADDRESS: _____

NAME OF PROJECT: COUNTY ROAD 13 AND HWY 104 WATER MAIN IMPROVEMENTS
AND SOUTH DRIVE BOOSTER STATION UPGRADE

1. When was your firm organized under its present name?

2. Under what other names has your firm operated?

3. If your firm is a corporation:
Date of incorporation: _____
State of incorporation: _____
President's name: _____
Names of other officers: _____

4. If your firm is a partnership:
Date of organization: _____
Names of general partners: _____

5. If your firm is individually owned: _____
Date of organization: _____
Name of owner: _____

SECTION 000450

BIDDER'S QUALIFICATIONS

6. Describe the general character of the work performed by your firm.

7. Has your firm ever failed to complete any work awarded to it? If yes, attach details.

8. Does your firm have any pending judgements, claims, arbitration or suits against it? If yes, attach details.

9. On an accompanying sheet, list the major construction projects you have in progress. Give the name of the project, owner, engineer, contract amount, percent complete, and completion date.

10. In an accompanying sheet, list five major projects you have completed in the past three years. Give the name of the project, owner, engineer, month and year of completion, and the contract amount.

11. List your major equipment available for this project.

12. List the background and experience of the officers of the firm and the key personnel that will be assigned to this project. Use additional sheets.

13. What is the available credit to your firm: \$ _____
Give bank reference: _____

SECTION 000450

BIDDER'S QUALIFICATIONS

14. Furnish a financial statement. Include the latest balance sheet and income statement showing the following: Current assets, net fixed assets, other assets, current liabilities, and other liabilities.

Dated this _____ day of _____, 2013.

Name of Contractor

By:

Title:

Attest:

END OF SECTION 000450

SECTION 00520

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

THIS AGREEMENT is by and between The City of Fairhope, Alabama (“Owner”) and
_____ (“Contractor”).

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

Install 16” and 12” water main along CR 13 and Hwy 104, respectively. Remove and replace pumps and equipment in booster station located on South Dr. Project located in the City of Fairhope, Alabama.

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

- Install approx. 14,000 linear feet of 16”/12” water line and fittings.
- Removal and replacement of pumps and equipment in booster station.
- Install pressure sustaining valve along South Dr.
- Provide renovations to existing pump house (doors and roof) as well as an asphalt driveway.
- Site restoration and cleanup as described herein and as shown on the plans.
- Coordination of work with other on-site Contractors and City personnel.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Thompson Engineering, Inc. (Engineer), which 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 the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

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

SECTION 000520

AGREEMENT

4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within 100 days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within 150 days after the date when the Contract Times commence to run

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$750 for each day that expires after the time specified in Paragraph 4.02 above 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 \$750 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 – CONTRACT PRICE

- 5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A below:

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

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 15th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of 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 in the General Requirements.

SECTION 000520

AGREEMENT

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
 - a. 95 percent of Work completed (with the balance being retainage); and
 - b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 100 percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 200 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – CONTRACTOR'S REPRESENTATIONS

- 7.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has considered the information known to Contractor; 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, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.
 - E. Based on the information and observations referred to in Paragraph 8.01.D above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract

SECTION 000520

AGREEMENT

Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

- F. 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.
- G. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- H. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 – CONTRACT DOCUMENTS

8.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement.
 - 2. Performance bond.
 - 3. Payment bond .
 - 4. General Conditions.
 - 5. Supplementary Conditions.
 - 6. Specifications as listed in the table of contents of the Project Manual.
 - 7. Drawings included in the Bid.
 - 8. Addenda (numbers _____ to _____, inclusive).
 - 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor’s Bid.
 - b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
 - 10. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed (pages _____ to _____, inclusive).
 - b. Work Change Directives.
 - c. Change Orders.
- B. The documents listed in Paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 8.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

SECTION 000520

AGREEMENT

ARTICLE 9 – MISCELLANEOUS

9.01 *Terms*

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

9.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, 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.

9.03 *Successors and Assigns*

- A. 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 to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 *Severability*

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

9.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 9.05:
 1. “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

SECTION 000520

AGREEMENT

- 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.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

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

OWNER:

CONTRACTOR

By: _____

By: _____

Title: _____

Title: _____

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

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____

(Where applicable)

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

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

Agent for service of process:

SECTION 000550

PERFORMANCE BOND
(CONTRACT BOND)

KNOW ALL MEN BY THESE PRESENTS: That we _____

(hereinafter called the "Principal")

and _____

(hereinafter called the "Surety")

are held and firmly bound unto City of Fairhope, Fairhope, Alabama (hereinafter called

"City of Fairhope") in the penal sum of _____

_____ Dollars (\$_____)

for payment of which we bind ourselves, our heirs, executors, administrators, successors, and

assigns for the faithful performance of a certain written Contract dated _____ day of

_____, 2013, entered into between the Principal and _____

_____ for the construction of:

**COUNTY ROAD 13 AND HWY 104 WATER MAIN IMPROVEMENTS AND SOUTH DRIVE
BOOSTER STATION UPGRADE
CITY OF FAIRHOPE, AL
THOMPSON ENGINEERING PROJECT 12-2111-0072**

a copy of which said Contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall faithfully perform the terms and conditions of the Contract in all respects on their part, and shall fully pay all obligations incurred in connection with the performance of such Contract on account of labor and materials used in connection therewith, and all such other obligations of every form, nature and character, and shall save harmless City of Fairhope from all and any liability of every nature, kind, and character which may be incurred in connection with the performance or fulfillment of such Contract or other such liability resulting from negligence or otherwise on the part of such Principal and further shall save harmless City of Fairhope from all cost and damage which may be suffered by reason of the failure to fully and completely perform said Contract and shall fully reimburse and repay City of Fairhope for all expenditures of every kind, character and description which may be incurred by City of Fairhope in making good any and every default which may exist on the part of the Principal in connection with the performance of said Contract; and further that the Principal shall pay all lawful claims of persons, firms, partnerships, or corporations for all labor performed and material furnished in connection with the performance of the Contract, and that the failure so to do with such person, firms, partnerships or corporations shall give them a direct right of action against the Principal and Surety under this obligation; and provided, further that if any alterations or additions which may be made under

SECTION 000550

PERFORMANCE BOND
(CONTRACT BOND)

the Contract, or in the Work to be done under it, or the giving by City of Fairhope of any extensions of time for the performance of the Contract or any other forbearance on the part of either City of Fairhope or the Principal shall not, in any way, release the Principal and Surety, or either of them, their heirs, executors, administrators, successors, or assigns for their liability hereunder, notice to the Surety of any such alterations, extensions or forbearance being expressly waived. This obligation shall remain in full force and effect until the performance of all covenants, terms and conditions herein stipulated and after such performance, it shall become null and void.

IN TESTIMONY WHEREOF witness the hands and seal of the parties hereto on this _____ day of _____, 2013

Executed in two (2) counterparts.

By _____
(Principal)

Witness: _____
(Legal Signature)

(Printed Name and Title)

By _____
(Surety)

Witness: _____
(Legal Signature)

(Printed Name and Title)

By _____
(Resident Agent)

(Printed Name and Title)

END SECTION 000550

SECTION 000560

PAYMENT BOND
(LABOR AND MATERIAL BOND)

KNOW ALL MEN BY THESE PRESENTS: That we _____

_____, as Principal,

and _____, as Surety, are held and

firmly bound unto City of Fairhope, Alabama (City of Fairhope), hereafter called the "Obligee," in the

penal sum of _____

_____ Dollars (\$_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has entered into a certain Contract with said Obligee, dated

_____, 2013, (hereinafter called the "Contract") for the construction of:

**COUNTY ROAD 13 AND HWY 104 WATER MAIN IMPROVEMENTS AND SOUTH DRIVE
BOOSTER STATION UPGRADE
CITY OF FAIRHOPE
THOMPSON ENGINEERING PROJECT 12-2111-0072**

which Contract and the Specifications for said Work shall be deemed a part hereof as fully as if set out herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal and all subcontractors to whom any portion of work provided for in said Contract is sublet and all assignees of said Principal and of such subcontractors, shall promptly make payments to all persons supplying him or them with labor, materials, feed-stuffs or supplies for or in the prosecution of the Work provided for in such Contract, or in any amendment or extension of or additions to said Contract, and for the payment of reasonable attorney's fees, incurred by the claimant or claimants in suits on each bond, then the above obligations shall be void; otherwise to remain in full force and effect. PROVIDED, however, that this bond is subject to the following conditions and limitations.

- (a) Any person, firm or corporation that has furnished labor, materials, feed-stuffs, or supplies for or in the prosecution of the Work provided for in said Contract shall have a direct right of action against the Principal and Surety on this bond, which right of action shall be asserted in a proceeding instituted in the County in which the Work provided for in said Contract is to be performed or in any county in which said Principal and Surety does business. Such right of action shall be asserted in a proceeding instituted in the name of the claimant or claimants for

SECTION 000560

PAYMENT BOND
(LABOR AND MATERIAL BOND)

his or their use and benefit against said Principal and Surety or either of them (but not later than one year after the final settlement, including warranties, of said Contract) in which action such claim or claims shall be adjudicated and judgment rendered thereon.

- (b) The Principal and Surety hereby designate and appoint

(To Be Filled in By Surety Company)

as the agent of each of them to receive and accept service of process or other pleading issued or filed in any proceeding instituted on this bond and hereby consent that such service shall be the same as personal service on the Principal and/or Surety.

- (c) The Surety shall not be liable hereunder for damage or compensation recoverable under any Workmen's Compensation or Employer's Liability Statute.
- (d) In no event shall the Surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than one year after the final settlement, including warranties, of said Contract.
- (e) This bond is given pursuant to the terms of Act No. 39, General Laws of Alabama, approved February 8, 1935, entitled "An Act to Further Provide for Bonds of Contractors on State and Other Public Works and Suits Thereon."

END SECTION 000560

**AFFIDAVIT FOR CONTRACTOR OR SUBCONTRACTOR IN
COMPLIANCE WITH ALA. ACT NO. 2011-535 (HB56)**

STATE OF ALABAMA

COUNTY OF _____

BEFORE ME, the undersigned Notary, personally came and appeared _____ (print name) who, being duly sworn, says as follows:

As a condition for the award of any contract, grant, or incentive by the State of Alabama, any political subdivision thereof, or any state-funded entity to a business entity or employer that employs one or more employees, I hereby attest that in my capacity as _____ (state position) for _____ (state business entity/employer/contractor name) that said business entity /employer/contractor shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien. I further attest that said business entity/employment/contractor is enrolled in the E-Verify program. (Attach documentation establishing that business entity/employer/contractors is enrolled in the E-Verify program.)

Signature of Affiant

Sworn to and subscribed before me, this ___ day of _____, 20____.

I certify that the affiant is known (or made known) to me to be the identical party he or she claims to be.

Signature and Seal of Notary Public

Date of expiration _____

SECTION 000700

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. 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 which is evidence of the agreement between Owner and Contractor covering the Work.
 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. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer 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, issued on or after the Effective Date of the Agreement.

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10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.

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22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given 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 under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *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.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

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34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *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.
40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *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 for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *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 at the Site.
44. *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

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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.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *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 Subcontractor.
48. *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 those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *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, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

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1.02 Terminology

- A. The words and terms discussed in Paragraph 1.02.B through F 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 Paragraph 9.09 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 14.04 or 14.05).
- 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

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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. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.
- 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. 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 Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *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 Agreement 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 Agreement. In no event will the Contract Times

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commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *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 the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), 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 Documents;
 - 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.

2.06 *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 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, 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 instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *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

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accordance with Paragraph 2.05.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 component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, 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. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, 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, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

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2. No provision of any such standard, specification, manual, 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 Contract Documents. 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 Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, 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) any standard, specification, manual, or code, or (c) 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 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
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 Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

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- a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); 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 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier 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
 2. 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.
- 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.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may

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be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *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. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- 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 the Work is to be performed 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.

4.02 *Subsurface and Physical Conditions*

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

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1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “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.

4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed 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 4.02 is materially inaccurate; or
 2. is of such a nature as to require a change in the Contract Documents; 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 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not

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further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review.* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition 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 meet any one or more of the categories described in Paragraph 4.03.A; and
 - 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 Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final 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
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court

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or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous 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 shall not be responsible for 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 such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, 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 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document

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such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *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.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "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

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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 any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) 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 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. 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, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. 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. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner’s own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors,

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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: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. 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 a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, 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 Documents. 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 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent

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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 each bond.

- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, 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 requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

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5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which 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:
1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 5. 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; and
 6. 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.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and 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;

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2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, 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.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full 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 interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and

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subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

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, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, 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.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

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- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies 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 of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their 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 Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (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 as trustee 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:

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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 utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.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, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing

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within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, 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. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *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. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- 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.

6.02 *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.

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- 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. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *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.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 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 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

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6.05 *Substitutes and "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 specification or description 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 or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion 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, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, 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; and
- 3) it has a proven record of performance and availability of responsive service.

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.

2. *Substitute Items:*

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- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. 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:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) 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
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and

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b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. 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.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether

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initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. 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 any right of Owner or Engineer to reject defective Work.
- C. 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. 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 moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

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- F. 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.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (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 such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *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,

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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.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, 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 opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *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 knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear 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. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

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6.10 Taxes

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

6.11 Use of Site and Other Areas

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

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. 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 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 by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other 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 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.

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- D. *Loading 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 property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. 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, 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 owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- 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.

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- 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 6.13.A.2 or 6.13.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 (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 for protection of the Work 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *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.

6.15 *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.

6.16 *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.

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6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - 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 6.17.D.
 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. 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 6.17.D.
- B. 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. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each 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 offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

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- 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 and approval of that 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 both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

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 (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval 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 6.17.C.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's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

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

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writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. 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, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *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 representation of 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 or the issuance of a notice of acceptability by Engineer;
 - 6. any inspection, test, or approval by others; or

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7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. 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 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 6.20.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 6.20.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.

6.21 *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

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for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

- 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, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to 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 6.21, 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 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

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- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. 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. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, 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.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

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- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

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8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *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.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *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.

8.12 *Compliance with Safety Program*

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 pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *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 Documents.

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9.02 *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 9.09. 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.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which 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. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both,

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and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that 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. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with 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, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. 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 Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the

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requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents 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 14.07.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.

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- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *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 by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *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 as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. 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; and

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3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *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.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 1. deny the Claim in whole or in part;

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2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs 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 11.01.B, 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, 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.

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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 11.01.
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.

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- 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 5.06.D), 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 telegrams, long distance telephone calls, telephone 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 Contractor are required by the Contract Documents to purchase and maintain.
- B. *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 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which 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.

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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 Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work 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 or when a Claim for an 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 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, 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.

11.02 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:*
1. Contractor agrees that:
 - a. 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
 - b. 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.

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C. *Contingency Allowance:*

1. 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.

11.03 *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. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

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. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 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; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor 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 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the

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party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for 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, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: 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 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.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 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

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- 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, 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 Price or the Contract Times, or both. 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.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be

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Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or 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) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests 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.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

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2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 3. as otherwise specifically provided in the Contract Documents.
- 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 and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. 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.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, 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, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, 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 uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or

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reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

- D. 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, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *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, 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.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. 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 removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *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 land or areas made available for Contractor's use by Owner or permitted by Laws and

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Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 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 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. 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) will be paid by Contractor.
- 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 13.07, 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 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and

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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) 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 pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *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 in accordance with Paragraph 13.06.A, 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, 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 13.09, 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, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, 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 (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) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include

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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 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A 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.

14.02 *Progress Payments*

A. *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 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.

B. *Review of Applications:*

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1. Engineer will, within 10 days after receipt of each Application for Payment, 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 9.07, 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 Documents; 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

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- 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 moneys 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 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

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- b. 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;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action 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, when Contractor remedies the reasons for such action.
 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 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *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 (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- 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 tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after

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receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. 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 tentative list.

14.05 *Partial Utilization*

- 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. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and 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 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

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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 14.04 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 5.10 regarding property insurance.

14.06 *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 is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *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, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and

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- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) 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.

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 Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. 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 14.09. 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. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the

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remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *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 notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will 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 established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

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2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. 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
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.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 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) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed 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.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. 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. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

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- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *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;
 3. 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) 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 15.03.
- 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

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Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 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 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *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:

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1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents 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.

17.03 *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 Documents. 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.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

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SUPPLEMENTARY CONDITIONS

The following Supplementary Conditions modify, supplement or amend the General Conditions.

SC.01 Amending Section 2.02

The Owner will furnish a maximum of five (5) sets of Plans and Specifications for construction purposes to the Contractor. If additional sets of Plans and Specifications are needed, the Contractor shall reimburse the Engineer for the costs of reproduction as well as a handling charge for the requested copies.

SC.02 Amending Section 4.02

Delete Paragraphs 4.02.A and 4.02.B in their entirety and insert the following:

- A. No reports of explorations or tests of subsurface conditions at or contiguous to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.
- B. Not Used.

SC.03 Amending Section 4.06

Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

SC 04 Amending Section 5 – Insurance

Add the following sentence: *City of Fairhope shall be named as an additional insured.* after paragraph 5.03A.

Add the following new paragraph immediately after Paragraph 5.04.B:

Liability Insurance: The amounts of liability insurance to be provided by Contractor are as follows:

Workers Compensation

State	Statutory
Applicable Federal	Statutory
Employer’s Liability	\$1,000,000 Each Occurrence and Aggregate

Comprehensive General Liability

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

Extensions:

- Personal Injury
- Blanket Contractual Liability
- Blanket Collapse and Underground Coverage

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SUPPLEMENTARY CONDITIONS

Broad Form Property (including Completed Operations)
Employees as Additional Insured
Host Liquor Liability
Non-owned Watercraft Liability
Worldwide Products
Fire Legal Liability
Incidental Medical Malpractice
Extended Bodily Injury (Assault and Battery)
Newly Acquired Organizations

Comprehensive Automobile Liability

Bodily Injury and Property Damage	
\$1,000,000	Each Occurrence
\$2,000,000	Annual Aggregate

Umbrella Coverage (also called Excess Liability)

\$2,000,000 Each Occurrence and Aggregate
Excess Liability will be in excess of underlying rates

Extensions:

Personal Injury
Blanket Contractual Liability
Broad Form Property (including Completed Operations)
Blanket Collapse and Underground Coverage
Employees as Additional Insured
Host Liquor Liability
Worldwide Products
Fire Legal Liability
Incidental Medical Malpractice
Extended Bodily Injury (Assault and Battery)
Newly Acquired Organizations

When and if the use of explosives for blasting purposes appears to be necessary or desirable, such methods shall not be undertaken without written authorization of the Owner, and then only provided that acceptable extensions of liability coverage have been obtained specifically to include the explosion ("X") hazard and the collapse ("C") hazard.

The policy of general liability shall include the special underground property damage coverage (providing the so-called "U" hazard) on a blanket basis.

Environmental (Sudden and Accidental)

\$1,000,000	Each Occurrence and Aggregate
-------------	-------------------------------

Owners Protective Liability: The Contractor shall furnish from a carrier acceptable to the Owner, a policy of liability insurance, commonly called "Owner's Protective Liability" in the name of the Owner, providing "Independent Contractor's Coverage" for the operations

SECTION 000800

SUPPLEMENTARY CONDITIONS

embraced by this Contract with the limits of \$1,000,000 bodily injury and \$1,000,000 property damage. Policy shall be paid by the named Contractor. This policy shall name the Engineer, and Surveyor as additional insured.

An attempt should be made to include Owner's Protective Liability under the Umbrella Policy for the Contractor. In the absence of this, the contractor shall increase the limits of liability on the Owner's Protective Liability by \$2,000,000.

Property Insurance Contractor:

- a. The Contractor shall assume complete responsibility for safe-guarding all portions of the Work in progress, whether completed or not, until such work has been accepted by the Owner, and shall maintain such insurance to protect himself against perils which may cause such property to be damaged or destroyed. This coverage shall be similar to the former All Risks of Physical Loss Form, including, if available, collapse. Title to such work in progress, whether completed or not, shall remain vested in the Contractor until finally accepted by the Owner.
- b. Coverage Form: Coverage shall be provided on an actual completed value Builder's Risk Form or, if more appropriate, an installation floater in the joint name of the Contractor and Owner for the duration of the Contract.
- c. The Owner has the option of providing Builder's risk coverage for any projects undertaken by the Contractor. If the Owner exercises this option, the Contract Proposal will appropriately indicate this and provide for separately showing the cost of the Builder's Risk coverage in the Bid.

Certification: The Contractor shall furnish a certificate and/or policies verifying that the above coverage's are in effect before commencing any work, and that each policy is endorsed to give the Owner 30 days notice in writing in the event of cancellation or material change therein. Certificates of Insurance shall state that the Owner, the Engineers and their agents and employees, be named as additional insured on the Contractor's Automobile Liability and Comprehensive General Liability policies. In respect to Worker's Compensation, a Waiver of Subrogation shall be issued in favor of the Owner and the Owner's Engineers, Surveyors and their agents and employees.

SC.05 Amending Section 6.03

Add the following new paragraph immediately after Paragraph 6.03C:

- D. During inclement weather or in the event of a temporary suspension of work, Contractor will and will cause his subcontractor (if any) to protect his work and materials from damage or injury from the weather. If the Contractor fails to protect his work or the work of his subcontractors, and the work is damaged, then such work or materials shall be removed and replaced at the expense of the Contractor.

SC.06 Amending Section 6.11

SECTION 000800

SUPPLEMENTARY CONDITIONS

Add the following new paragraph immediately after Paragraph 6.11.D:

- E. Warning signs shall be posted as appropriate, to warn people approaching the job site of dangers at the job site.
- F. Contractor shall be responsible for job site security during the course of the work.
- G. Contractor shall be responsible for damage to buried cables and pipes by his equipment, and shall contact the appropriate agencies and offices prior to construction for information on location, depth, etc., of buried lines in the area.

SC.07 Amending Section 6.17

Add the following new paragraph immediately after Paragraph 6.17.E:

- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.
- G. In the event that Contractor requests a change of a previously approved item, Contractor shall reimburse Owner for Engineer's charges for its review time unless the need for such change is beyond the control of Contractor.

SC.08 Amending Section 9.03

Add the following new paragraph immediately after Paragraph 9.03.A:

- B. The Resident Project Representative (RPR) will be Engineer's employee or 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 Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall be through or with the full knowledge and approval of Contractor. The RPR shall:
 - 1. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.
 - 2. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
 - 3. Liaison:
 - a. Serve as Engineer's liaison with Contractor, working principally through Contractor's authorized representative, assist in providing information regarding the intent of the Contract Documents.
 - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

SECTION 000800

SUPPLEMENTARY CONDITIONS

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

SECTION 000800

SUPPLEMENTARY CONDITIONS

- c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition.
11. Payment Requests: Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
 12. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
 13. Completion:
 - a. Participate in a Substantial Completion inspection, assist in the determination of Substantial Completion and the preparation of lists of items to be completed or corrected.
 - b. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final list of items to be completed and deficiencies to be remedied.
 - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.
- C. The RPR shall not:
1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor's superintendent.
 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work unless such advice or directions are specifically required by the Contract Documents.
 5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

SECTION 000800

SUPPLEMENTARY CONDITIONS

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

SC.09 Amending Section 14.04

Add the following new paragraph immediately after Paragraph 14.04.E:

- F. After receiving the letter of Substantial Completion, Contractor shall immediately give **Notice of Completion** of said Work by an advertisement in some newspaper of general circulation within the city or county wherein the Work has been done for a period of four (4) consecutive weeks. Proof of publication of said notice shall be made by the Contractor to the Owner, by affidavit of the publisher and a printed copy of the notice published. In any case, the minimum statutory requirements for advertisement of completion of the work shall be met.

SC.10 Amending Section 17

Add the following Section 17.07

17.07 Alabama Acts Nos. 84-227 and 84-228

- A. Contractors shall comply with the requirements of Alabama Acts 84-227 and 84-228 of the State of Alabama. Section 2 of Act 84-228 requires the Contractor to submit certain documents with the bid documents. Failure to do so may be cause for rejection of the Contractor's bid.

END OF SECTION 000800

SECTION 011000

SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Summary of Work
- B. Permits and Regulations
- C. Project Construction Requirements

1.2 SUMMARY OF WORK

- A. This Contract covers the furnishing of all labor, materials, equipment, transportation, and appurtenances required to install water main improvements and pump house upgrades. In general the work includes but is not limited to the following:
 - Install approx. 14,000 linear feet of 16"/12" water line and fittings.
 - Directional bore of water mains.
 - Jack and Bore of Steel Casing under driveways.
 - Removal and replacement of pumps and equipment in booster station.
 - Install pressure sustaining valve along South Dr.
 - Provide renovations to existing pump house (doors and roof) as well as an asphalt driveway.
 - Site restoration and cleanup as described herein and as shown on the plans.
 - Coordination of work with other on-site Contractors and City personnel.
- B. The intent and meaning of the Contract Documents require that the Contractor, under the terms of the Contract, shall take such action as necessary and/or required to provide labor, materials, equipment, transportation, facilities, plants and appurtenances thereto, which are indicated, or reasonably implied by the Drawings (Plans), and each Section of the Specifications, all of which are collectively necessary and required for the execution of the Work.
- C. Contractor is solely responsible for the safety of his personnel and the security of the site during the work as stated elsewhere. In addition, the Contractor's personnel must undergo a background check with the Fairhope Police Department as a part of Fairhope's Homeland Security compliance.

1.3 PERMITS AND REGULATIONS

- A. Contractor shall be solely responsible for obtaining the necessary construction permits from the proper authorities.
- B. Contractor is responsible for compliance with all federal, state and local regulations which affect implementation of the Project.
- C. If Contractor observes that the Contract Documents are at variance with any laws, ordinances, rules and regulations applicable to the Work, he shall give the Owner written notice thereof. Necessary changes shall be addressed by an appropriate Change Order. Any Work performed by the Contractor which is contrary to such laws, ordinances, rules and regulations and without written notice to the Owners shall be either dismantled and rebuilt or modified, with approval of the Owner, to comply with said

SECTION 011000

SUMMARY OF THE WORK

laws, ordinances, rules and regulations. Costs arising from such shall be borne by the Contractor.

1.4 PROJECT CONSTRUCTION REQUIREMENTS

A. General

1. The CONTRACTOR shall have the required equipment and material needed for the required work, before any work is commenced.
2. The CONTRACTOR is advised that purchases of materials are to be scheduled so that items can be installed as required to assure project success. Purchase orders for any long lead items shall be placed as soon as possible after the receipt of Notice of Award so as not to delay materials delivery. Delivery delay shall not excuse CONTRACTOR from liquidated damages.
3. All materials and/or equipment held in storage by the CONTRACTOR shall be protected from the weather, vandalism and/or flooding by suitable waterproof coverings or by placing in storage buildings until ready for installation or until equipment is to be turned over to the OWNER.
4. The CONTRACTOR shall make appropriate arrangements with the utility companies to provide for services necessary to complete the work. The CONTRACTOR shall comply with all protection requirements for the existing utilities.

1.5 EXISTING CONDITIONS

- A. The Contractor is advised that if he damages any facility outside the limits of construction, it shall be his responsibility to replace/restore the item(s) to their original condition. No additional compensation shall be provided for replacing damaged areas in kind outside the limits of construction.
- B. The Contractor shall contact all utility and municipal authorities prior to Work commencement and have them locate utilities that may be in the vicinity of the excavations prior to excavating the site.
- C. The Plans provide the approximate locations of underground utilities, tanks and related piping but not all utilities are identified. The Contractor shall protect all utilities while performing the Work. The Contractor shall repair, at his expense, any damages to utilities that occur as a result of the Contractor's negligence.

1.6 COORDINATION OF EQUIPMENT SYSTEMS

- A. The CONTRACTOR shall coordinate all equipment systems with Contract Drawings and submit a complete and coordinated shop drawing submission of the specific equipment system in accordance with Section 01300, SUBMITTALS.

1.7 PLANNED SEQUENCE OF CONSTRUCTION

- A. The CONTRACTOR, in accordance with Section 013300, SUBMITTALS, shall be responsible for submitting a planned sequence of construction prior to beginning work. Any necessary temporary utilities or facilities required during construction, or to operate or test new facilities until such time as permanent utilities are installed, shall be provided with no additional cost to the OWNER.

SECTION 011000

SUMMARY OF THE WORK

- B. Before starting work in any area of this project, the CONTRACTOR shall construct necessary or required soil erosion control measures in accordance with the plans and specifications and the Construction Best Management Practices Plan (CBMPP) prepared by CONTRACTOR.
- C. If, after award of the Construction Contract, a CONTRACTOR initiates or causes a change in the recommended construction sequence, said CONTRACTOR must bear any additional costs which are occasioned by the change, whether his own costs or those incurred by other CONTRACTORS. The ENGINEER's approval of such schedule or subsequent modifications thereto shall not relieve a CONTRACTOR from this responsibility.
- D. Notwithstanding any of the foregoing responsibilities for coordination, the ENGINEER will resolve disagreements which cannot be settled among the CONTRACTORS. The ENGINEER's decisions will be based on the solution which best serves the interests of the OWNER and this particular project. The ENGINEER's decision is final and not subject to CONTRACTOR claims for delay damages or time extensions.

1.8 CONTRACTOR'S USE OF SITE

- A. CONTRACTOR shall have use of the site for storage and the operations of workmen except as noted on the Plans. The CONTRACTOR shall coordinate all construction with the Owners Office. If additional laydown area is needed so as to not conflict with other Contractors on-site, the Owner and Engineer will designate said area.
- B. CONTRACTOR shall:
 - 1. Assume full responsibility for protection and safekeeping of products stored on or off the site.
 - 2. Obtain and pay for all additional storage or work areas required for its operations.
- C. Other construction projects are occurring on and near the site. Contractor shall coordinate his efforts with other contractors in the area to prevent conflicts between projects and resources.

1.9 MISCELLANEOUS ITEMS

- A. The CONTRACTOR shall inform his SUBCONTRACTORS of the conditions listed in this SUMMARY OF THE WORK, since the CONTRACTOR shall be held responsible for the action of their SUBCONTRACTORS.
- B. The exact location of the CONTRACTOR'S temporary facilities must be approved by the OWNER.

1.10 EASEMENTS AND RIGHTS-OF-WAY

- A. Easements and rights-of-way will be provided by OWNER. Confine construction operations within the limits indicated on the Drawings. Use due care in placing construction tools, equipment, excavated materials, and pipeline materials and supplies in order to avoid damage to property and interference with traffic. Do not enter any private property outside the designated construction easement boundaries without written permission from the OWNER of the property.
- B. The CONTRACTOR'S responsibility shall include compliance with all Federal, State, Tribal and Local regulations which in any way affect the work or implementation of the

SECTION 011000

SUMMARY OF THE WORK

project.

1.11 NOTICES TO OWNERS AND AUTHORITIES OF PROPERTIES ADJACENT TO THE WORK

- A. Notify Owners of adjacent property and utilities when prosecution of the Work may affect them.
- B. When it is necessary to temporarily obstruct access to property, or when any utility service connection must be interrupted, give notices sufficiently in advance to enable the affected persons to provide for their needs. Conform notices to any applicable local ordinance and, whether delivered orally or in writing, include appropriate information concerning the interruption and instructions on how to limit inconvenience caused thereby.
- C. Utilities and other concerned agencies shall be notified at least 24 hours prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines.

1.12 APPLICABLE SUPPLEMENTAL DOCUMENTS

- A. None

1.13 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

SECTION 011000

SUMMARY OF THE WORK

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 011020

ENVIRONMENTAL PROTECTION

PART 1 – GENERAL

1.1 SCOPE:

- A. This section covers prevention of environmental pollution and damage as the result of construction operations under this contract and for those measures set forth in other Technical Provisions of these specifications. The sensitivity of construction as a means to develop high quality properties within existing regulatory and community standards demands the attention of all involved to protect the site and adjacent / receiving waters from operationally contributed pollution during site preparation and construction. For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy, as well as other pollutants.

1.2 QUALITY CONTROL:

- A. The Contractor shall establish and maintain quality control for environmental protection of all items set forth herein. The Contractor shall record on daily reports to be provided to Engineer any problems in complying with laws, regulations and ordinances and corrective action taken.
- B. Submittals:
 - 1. Construction Best Management Practices Plan, per Paragraph 1.6.
 - 2. Restoration Plan, per Paragraph 1.8.
 - 3. Contractor Personnel Acknowledgement, per Paragraph 1.10, A.
 - 4. Training Records, per Paragraph 1.10, B.

1.3 PERMITS:

- A. Permits Obtained by the Owner: The Contractor shall comply with all requirements under the terms and conditions set out in the permits or certifications obtained by the Owner.
- B. Permits Obtained by Contractor: The Contractor shall be responsible for the preparation, filing, and compliance with the Construction Site NPDES Notice of Registration (NOR) as per the regulations of the Alabama Department of Environmental Management (ADEM) Chapter 335-6-12.

1.4 SUBCONTRACTORS:

- A. Assurance of compliance with this section by subcontractors will be the responsibility of the Contractor.

1.5 NOTIFICATION:

- A. The Engineer will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, State or local laws or regulations, permits and other

SECTION 011020

ENVIRONMENTAL PROTECTION

elements of environmental protection. The Contractor shall, after receipt of such notice, inform the Engineer of proposed corrective action and take such action as may be approved. If the Contractor fails to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted for costs or damages allowed to the Contractor for any such suspension.

1.6 PROTECTION OF ENVIRONMENTAL RESOURCES:

- A. The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The CONTRACTOR shall confine his activities to areas defined by the drawings and specifications. Before commencing work on site, CONTRACTOR shall develop and submit to ENGINEER for review and approval a Construction Best Management Practices Plan (CBMPP). This Plan shall include the design of Best Management Practices (BMPs), monitoring and maintenance procedures; hazardous materials (petroleum products, etc) spill prevention, containment and cleanup procedures; and, the Plan shall contain other considerations as specified herein or as appropriate to this Work. Common sense and a professional approach to this effort is required of the CONTRACTOR. Environmental Protection shall be as stated in the following subparagraphs:
- B. Protection of Land Resources: Appropriate BMP's shall be implemented to assure erosion control of cleared areas, including access roads to and from the Work site. Prior to the beginning of any construction, the CONTRACTOR shall identify all land resources to be preserved within the CONTRACTOR's work area per paragraph 1.6, B, 1 below. The CONTRACTOR shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and landforms without explicit permission from the ENGINEER. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the CONTRACTOR shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs:
 1. Work Area Limits: Prior to any construction, the Contractor shall mark the areas that are not required to accomplish all Work to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked and fenced with DOT plastic international orange mesh fence material. Monuments and marked areas shall be protected before construction operations commence. Should construction operations be conducted during darkness, the markers shall be visible for night operations. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary objects.
 2. Protection of Landscape: Except in areas marked on the plans to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorage unless specifically authorized by the Engineer. Where such special emergency use is permitted, the Contractor shall first adequately wrap the trunk with a sufficient thickness of burlap or rags over which softwood cleats shall be tied before any rope, cable, or

SECTION 011020

ENVIRONMENTAL PROTECTION

wire is placed. The Contractor shall in any event be responsible for any damage resulting from such use. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his other operations, he may direct the Contractor to adequately protect such trees by placing boards, planks, or poles around them.

3. Reduction of exposure of unprotected erodible soils: Any open earthwork shall be brought to final grade as quickly as possible and shall be finished as indicated and specified. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils.
 4. Temporary protection of disturbed areas: Such methods as necessary shall be used to effectively prevent erosion and control sedimentation. Runoff from the construction site shall be controlled by construction of diversion ditches, benches and berms to retard and divert runoff to protected drainage courses as necessary.
 5. Temporary excavation and embankments for planting and/or other Work areas shall be controlled to protect adjacent areas from despoilment.
 6. Protection of Groundwater Monitoring Wells: Prior to and during construction, the Contractor shall inspect the site and notify the Owner and Engineer should he discover any groundwater monitoring wells on the property. These wells shall be protected in place until they are properly closed by the Owner and Engineer.
- C. Protection of Water Resources: The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. Special management techniques shall be implemented to control water pollution by the listed construction activities which are included in this contract.
- D. Protection of Fish and Wildlife Resources: The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife.
- E. Protection of Air Resources: The Contractor shall keep construction activities under surveillance, management and control to minimize pollution of air resources. Contractor shall ensure all local, tribal, state and federal regulations concerning smoke/fire are planned for and followed.
- F. Control of Heavy Equipment related Operations:
1. Portable fuel, oil, hydraulic or other petroleum related equipment materials, whether in storage tanks or hand carried containers, shall be positioned, protected and handled per 40 CFR 112 and NPDES requirements. Special precautions shall be taken to assure that oil changes, hydraulic changes, waste materials (spent filters or rags, etc) and leaking machinery are NOT ALLOWED to spill petroleum materials on the site's soils. ANY such spillage shall be IMMEDIATELY cleaned up, with soils packed appropriately and disposed of in accordance with HAZMAT and used oil regulations. Should the Contractor fail to observe this aspect of responsible operations, Owner reserves the right to withhold or delay all or a percentage of any payment request under review or appropriation.

SECTION 011020

ENVIRONMENTAL PROTECTION

2. Equipment left on site, when not in use, shall be equipped with drip pans, etc. to protect against leaks of petroleum related products on to the ground. Fuel/oil storage tanks shall have secondary containment. Leaking equipment shall not be used on the project, especially in environmentally sensitive areas such as waterways, until repaired to a leak free condition.

1.7 POST-CONSTRUCTION CLEANUP:

- A. The CONTRACTOR shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess of waste materials, or any other vestiges of construction as directed by the ENGINEER. It is anticipated that excavation, filling and plowing of any access roads created for this Work will be required to restore the area to near natural conditions which will permit the growth of vegetation thereon. The disturbed areas shall be graded, filled with appropriate material and planted as required.

1.8 RESTORATION OF LANDSCAPE DAMAGE:

- A. The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas. This work will be accomplished at the Contractor's expense.

1.9 MAINTENANCE OF POLLUTION CONTROL FACILITIES:

- A. The Contractor shall maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

1.10 TRAINING OF CONTRACTOR PERSONNEL IN POLLUTION CONTROL:

- A. The Contractor shall train his personnel in all phases of environmental protection.
- B. Acknowledgement of this Specification:
 1. The training shall include a signed review of this specification by all personnel and subcontractors; and, a copy of the signatures stating the person has read and understood this specification shall be presented to the Engineer before Work commences.
- C. Training:
 1. Contractor shall implement training in methods of detecting and avoiding pollution, implementation and repair of NPDES BMP's, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities (vegetative covers, and instruments required for monitoring purposes) to ensure adequate and continuous environmental pollution control. Records of such training for project personnel shall be maintained as part of the project documentation for this Work and a copy of such records shall be provided to Engineer by Contractor before personnel shall engage in Work on site.

SECTION 011020

ENVIRONMENTAL PROTECTION

Acknowledgment of Specification

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE PERSONNEL INVOLVED IN THIS WORK ARE FAMILIAR WITH THIS SPECIFICATION AND THE NEED FOR PREVENTING POLLUTION ON THIS SITE.

The undersigned personnel have read and understand this Specification.

PRINT YOUR NAME

SIGNATURE

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*A copy of this page shall be provided to the **ENGINEER** prior to start of site operations, and an updated copy provided at any time new personnel are added to the work force for this project. The **CONTRACTOR** shall maintain a copy with his Contract Document specifications.*

END OF SECTION 011020

SECTION 011022

EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.1 SCOPE

- A. This specification covers the furnishing of all labor, material and equipment necessary to provide site erosion control as required, shown on the drawings or specified herein.
- B. This may include, but not be limited to; seeding, sodding, fences, berms, dikes, drains, netting, hay bales, sand bags, wattles, etc. as specified herein.
- C. The CONTRACTOR is responsible for implementing any and all measures necessary to control erosion and sedimentation on the site in order to comply with the National Pollutant Discharge Elimination System (NPDES) rules and regulations and the Alabama Department of Environmental Management (ADEM) Administrative Code 335-6-12.

1.2 GENERAL

- A. This work shall cover providing, establishing, maintaining, and installing erosion and sediment control as determined by the CONTRACTOR and approved by the ENGINEER or as directed by the OWNER.
- B. All erosion and sediment control shall be maintained by the CONTRACTOR during the contract period, and until contract acceptance.
- C. The CONTRACTOR shall examine the site and site conditions to determine the type of equipment that may be required to complete the scope of work.
- D. Once the work has begun on a section it will be the responsibility of the CONTRACTOR to continuously control erosion and sediment that should develop during construction.
- E. The CONTRACTOR shall review all specifications included in the Contract Documents for related work referenced in but not covered by this section.

1.3 REFERENCE PUBLICATIONS, CODES AND STANDARDS

- A. The editions in effect as of the date of this agreement of the following publications, codes, and standards shall be deemed part of this specification as applicable:
 - 1. USEPA, 1992, *"Storm Water Management for Construction Activities, Developing pollution Prevention Plans and Best Management Practices"*.
 - 2. Alabama Soil and Water Conservation Committee, March 2009, *"Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas"*
 - 3. Alabama Department of Transportation (ALDOT) Standard Specification for Highway Construction, Current Edition.

1.4 MATERIALS

- A. All materials shall comply with the plans and specifications. Certain materials can be substituted if authorized by the Engineer.
- B. Temporary pipe may be constructed of any type material which will carry water.
- C. Temporary wire fence and post may be any type fencing that will adequately serve the intended purpose as determined by the ENGINEER.

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- D. Polypropylene sheets may be of any size or color capable of serving the intended purpose but not less than 4 mils in thickness.
- E. Hay bales may either be hay or straw containing approximately five (5) cubic feet of material.
- F. Sand bags may be of cotton or burlap which will confine the sand inside the bag and be of a volume of approximately one (1) cubic foot.
- G. Silt fences shall consist of Alabama Department of Transportation (ALDOT) Type "A" silt fence.
- H. Wattles: A wattle is a tubular shaped or other elongated shaped sediment filter that is a manufactured product specifically produced for sediment control. It is made from interwoven biodegradable plant material such as straw, coir, or wood shavings in biodegradable or photodegradable netting. Wattles are also known as sediment logs and are designed to provide intimate contact with the soil, which prevents undermining and blowouts. They are porous and this property allows water to pass through the matrix of biodegradable plant material (straw, coir, or wood shavings) which slows velocity and filters sediment as it passes through the log. Wattles and sediment logs may be placed across channel bottoms or on slopes. Wattles used in a tidal environment should be made of coir or other matrix which is not as likely to float.
- I. Turbidity Curtain: A floating turbidity curtain or barrier consists of a reinforced vinyl material suspended in the water from a floatation device. This barrier is used to minimize sediment transport from a disturbed area adjacent to or within a body of water. It will provide sedimentation protection for a watercourse from up-slope land disturbance where conventional erosion and sediment controls cannot be used, or from dredging or filling within the watercourse. It should only be used to supplement conventional erosion and sediment controls as the last line of defense to the water body where such controls are practical.

1.5 DELIVERY AND STORAGE

- A. Laydown and storage areas shall be coordinated as required for the scope of work.

1.6 PERFORMANCE REQUIREMENTS AND WORKMANSHIP

- A. Temporary pipe will be of the size as required for the application. Special bedding requirements are not required.
- B. Temporary wire fences shall be constructed with the wire securely attached to the post.
- C. Polypropylene sheets shall be placed only in areas where water flow and silt must be contained.
- D. Sand bags shall be securely fastened when placed. The bags shall have a thickness of approximately six (6) inches.
- E. Hay bales shall be securely anchored by the use of stakes and wire or other approved methods.
- F. Silt fences shall be constructed at locations as required. Field splices can be made by overlapping the fabric a minimum of three (3) feet and securely fastening the

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fabric to the wire fence. Contractor shall maintain the fence until the contract has been accepted.

- G. If the fabric should become damaged an additional layer of fabric can be attached with at least a three (3) foot overlap.
- H. Temporary drainage sumps or sediment basins can be constructed near the ends of drainage structures or ditches to control silting.
- I. Sumps shall be cleaned periodically by the removal of the silt to keep the sump functional.

1.7 INSPECTIONS, TESTING AND QUALITY ASSURANCE

- A. The Contractor shall be solely responsible for protecting the site from any and all erosion.
- B. If erosion does occur, the contractor shall repair all damage and provide all additionally needed top soil at the Contractor's expense.
- C. CONTRACTOR shall be responsible for all inspections, monitoring, recordkeeping and reporting as required by NPDES regulations (Chapter 335-6-12).

1.8 SPECIAL CONDITIONS

- A. Contractor shall be responsible for reviewing references cited herein as well as municipal ordinances, other local area standards, and Best Management Practices for erosion and sediment control on construction sites. Contractor shall prepare and present a Notice of Registration (NOR) to ADEM for coverage under NPDES regulations for construction and other land disturbance (ADEM Chapter 335-6-12). The NPDES regulations require that a Construction Best Management Practices Plan (CBMPP) be prepared and certified by a Qualified Credentialed Professional (QCP). All inspections must be performed by a QCP or qualified personnel working under the direct supervision of a QCP.

END OF SECTION 011022

SECTION 012000

BASIS OF PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. The Contractor shall furnish all labor, materials, tools, and equipment necessary to complete the work of the items described herein or specified, encountered in this work, or as ordered by the Owner. The work shall also include all accessories, appurtenances, incidentals, and other work not specifically described in this section but required to satisfy the requirements of the Scope of Services and other sections of the specifications. It is the Contractor's responsibility to field verify all dimensions, sizes, conditions and quantities of all work items of this contract for both bidding and construction purposes.
- B. Definitions:
 - 1. Lump Sum – The Lump Sum Price for the various items shall be compensation in full for furnishing all material, labor, equipment, overhead, profit, insurance, permits and incidentals for the item in place complete in every detail.
 - 2. Unit Price – The Unit Price for the various items shall be compensation in full for furnishing all materials, labor, equipment, overhead, profit, insurance, permits and incidentals for the item in place complete in every detail.

1.2 MEASUREMENT AND PAYMENT

- A. Measurement for progress payments shall be the sole responsibility of the Contractor. Estimated quantities submitted for payment shall be reviewed by the Owner or the Owner's Representative to verify the accuracy of the estimate. Payments for lump sum items shall be on a progressive basis based on the percentages of work completed. The OWNER will make the final survey to determine if the final work product meets the plans and specifications.

1.3 QUALITY ASSURANCE

- A. The Contractor shall use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work.

PART 2 - PAY ITEMS

2.1 DESCRIPTIONS

- A. Project Description: The overall project is to install approx. 14,000 linear feet of 16"/12" water main and upgrade an existing water booster station.
- B. Work Description: The work consists of the installation of said project.

2.2 LUMP SUM COST ITEMS

- A. Payment for a lump sum bid shall be on a progressive basis based on the percentage of work completed. General costs include the following items and all other work required to complete the contract in accordance with the drawings and specifications unless specifically listed in the

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BASIS OF PAYMENT

bidding schedule and in this section. Cost of all items for which no direct payment is authorized but is necessary to complete the Work shall be included in the bid price for the item that most logically includes it.

- 1. Mobilization/Demobilization** - The Lump Sum Bid for this item shall be compensation in full for furnishing all materials, labor, equipment and incidentals to mobilize to the site, to accomplish all preliminary work (work specified before other bid items as transportation of equipment and personnel to the site and set up of equipment and trailers. Preliminary work shall include such items as bonds, submittals, meetings, quality control programs, construction facilities, environmental protection, signs, permits and notifications. Demobilization shall include such items as final project cleanup, removal of temporary environmental controls, closeout of permits, etc. **The maximum amount allowed for mobilization/demobilization shall not exceed 2% of the total amount of the base bid.**
- 2. Furnish and Install Pumps, Fittings, and Control Panel** – The Lump sum bid for this Item shall be compensation for furnishing all materials, labor, equipment and incidentals to mobilize to the site, to accomplish all work. This item includes all work within the walls of the existing pump house and includes pumps, panels, fittings, piping, valves, etc.
- 3. Furnish and Install Residential Steel Garage Door** - The Lump sum bid for this Item shall be compensation for furnishing all materials, labor, equipment and incidentals to mobilize to the site, to accomplish all work. This item includes all work within the walls of the existing pump house and includes pumps, panels, fittings, piping, valves, etc.

2.3 UNIT PRICE COST ITEMS

- 1. All other items will be paid for on a unit price for quantity installed.** - The Unit Price Bid shall include for furnishing all materials, labor, equipment and incidentals in accordance with the drawings and/or specifications.

PART 3 – EXECUTION (Not Used)

END OF SECTION 012000

SECTION 013300

SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Provisions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 SCHEDULES

- A. The CONTRACTOR shall be responsible for preparing a Progress or Work Schedule for the entire project.

1.4 SHOP DRAWINGS, SAMPLES AND MANUALS

- A. The CONTRACTOR shall process the shop drawings required by his Contract to the ENGINEER and he shall be responsible for their timely submission in accordance with the shop drawing schedule which is included in the overall progress or work schedule as described in Part 2 of this Section.
- B. Any proposed deviations/substitutions from that specified shall be clearly noted on the cover letter transmitting the shop drawing. Failure to so note will be cause for rejection of equipment, materials, etc. after installation.
- C. All submissions shall be marked with the Specification Section Number containing the item submitted for review, or Drawing number for items specified on Drawings only.
- D. Revised shop drawings submitted for review shall be marked "RESUBMISSION."

1.5 CONSTRUCTION PHOTOGRAPHS

- A. The CONTRACTOR shall be responsible for all construction progress photographs.

1.6 SUBMITTAL PROCEDURES

- A. All submittals shall be delivered to the Resident Project Representative on the project site.
- B. The Resident Project Representative will screen the submittals to ensure that they have been properly certified and identified by each CONTRACTOR. If they are submitted properly, the items will be processed for review.
- C. The processed submittals will be returned to the CONTRACTOR.

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SUBMITTALS

PART 2 - PRODUCTS

2.1 PREPARATION OF PROGRESS OR WORK SCHEDULE

- A. The CONTRACTOR shall prepare a Progress or Work Schedule for the entire Project, using CPM, showing the order in which each CONTRACTOR proposes to carry on his work and salient features, including submissions of shop drawings and samples and procurement of materials, to meet date of completion.
- B. Each activity in the Progress or Work Schedule shall be identified and a time for the performance of such activity indicated. Each activity shall be preceded by all work that must be accomplished prior to that activity. All abbreviations, codes and/or symbols used shall be described on the Schedule.
- C. In addition to the schedule described above, the CONTRACTOR shall submit a list of shop drawings he proposes to submit for review which shall include the following:
 - 1. Specification Section Number
 - a. Description of all items within section.
 - b. Approximate date of each submittal.
 - 2. Contract Drawing Number
 - a. Description of all items on each contract drawing, if not previously covered by the Specifications.
 - b. Approximate date of each submittal.

2.2 SUBMISSION OF PROGRESS OR WORK SCHEDULE

- A. Submit four (4) copies of Schedule to the ENGINEER for review within thirty (30) days after award of Contract. Update and resubmit Schedule monthly thereafter until completion of the work. Updated Schedule shall have completed activities removed or indicated as such. Whenever modifications are made to the Contract which add or delete activities and/or revise time of completion, Schedule shall be revised and resubmitted to the ENGINEER within ten (10) days after such modification is authorized.
- B. In the event that the work is behind schedule, the Schedule shall be revised, through the use of overtime work or by other means, to ensure that the work is completed within the Contract time. Under these circumstances, overtime work shall be performed at no additional cost to the OWNER.

2.3 SHOP DRAWINGS AND MANUALS

- A. GENERAL
 - 1. Shop drawings are defined as drawings, diagrams, illustrations, schedules, performance charts, brochures and other data prepared by the CONTRACTOR which illustrate how specific portions of the work shall be fabricated and/or installed.
 - 2. All submittals shall be marked with the Specification Section number containing the item for review or Drawing Number for items specified on Drawings only.

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SUBMITTALS

3. All submittals shall include the Thompson Engineering Standard Specification Number appropriate for the item submitted.
4. Shop drawings are not part of the Contract Documents, but are a supplementary means of communications to assist in the understanding of what the CONTRACTOR proposes to provide and to establish that whatever he intends to install either does or does not conform to the Drawings and Specifications.
5. In the instance of a request for a substituted item, the CONTRACTOR shall verify that it will fit into the space allocated to the originally required item giving due regard to all other trades' requirements. Where modifications to the Contract Documents are proposed, the CONTRACTOR must clearly indicate such deviation in writing in his transmittal letter. If the modification and/or substitutions are agreed to by the ENGINEER, the Contract Documents will be appropriately modified. However, when additional work is required, the CONTRACTOR is advised that he must pay the ENGINEER for redesign to accommodate the revised substitution as well as pay other CONTRACTORS for extra work required by them for the change. No increase in OWNER's construction cost will be allowed.

2.4 CATALOG SHEETS

- A. For standard manufactured items considered by the ENGINEER as not requiring special Shop Drawings, the CONTRACTOR shall submit four (4) copies of manufacturer's catalog sheets showing model numbers and illustrated cuts of the items to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring and control diagrams and all other pertinent information. This information shall be highlighted on all four (4) copies when appropriate.
- B. The ENGINEER will retain one (1) copies and return three (3) copies to the CONTRACTOR submitting the catalog sheets.

2.5 SHOP DRAWINGS

- A. The CONTRACTOR shall submit for review four (4) white prints of shop and working drawings of materials fabricated especially for his Contract, and of equipment and materials for which such drawings are specifically requested.
 1. Each CONTRACTOR shall submit two (2) copies of a letter with the shop drawings for each piece of equipment signed and certified by an authorized representative of the Equipment Manufacturer which certifies that the subject equipment meets or exceeds the current OSHA/ANSI and local industrial codes for safety. The letter shall also specifically identify any exceptions that the Equipment Manufacturer has taken in not providing the required safety devices as they relate to the above codes.
 2. Coordinate all equipment systems with the Drawings and submit a complete and coordinated shop drawing submission of the specific equipment system. All shop drawings related to the specific equipment system shall be submitted at the same time for review. The shop drawing submission shall provide the coordination of concrete foundations, piping, relative elevations, electrical, chemical facilities, instrumentation facilities,

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dimensions, structural changes, etc. in sufficient detail that the ENGINEER can adequately review the shop drawing. Equipment systems submitted which are incomplete and uncoordinated shall be returned to the CONTRACTOR, unchecked. A resubmission shall be made after equipment system shop drawings have been completed and coordinated. Any required changes in the equipment system layout vs. the equipment system shown on the Drawings shall be provided by the CONTRACTOR at no added expense to the OWNER or ENGINEER.

3. Prior to submitting drawings to the ENGINEER, the CONTRACTOR shall check thoroughly all such drawings to satisfy himself that the subject matter conforms to the Drawings and Specifications in all respects. Drawings which are correct shall be marked with the date, checker's name and certification of the CONTRACTOR'S approval, and then shall be submitted to the Resident Project Representative. Any shop drawings submitted without the CONTRACTOR'S certification will be returned without review.
4. The ENGINEER will retain one (1) copies and return the remaining three (3) to the CONTRACTOR.
5. Shop drawings shall show the principal dimensions, weight, structural and operating features, performance characteristics and wiring diagrams, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for this Contract.
6. When so specified or if considered by the ENGINEER to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted for review in place of shop and working drawings. In such case the requirements shall be as specified for shop and working drawings, insofar as applicable.
7. The CONTRACTOR shall be responsible for the prompt submission of all shop and working drawings in accordance with the shop drawing schedule so that there shall be no delay to the work due to the absence of such drawings.
8. No material shall be purchased or fabricated especially for this Contract until the required shop and working drawings have been submitted and reviewed as conforming to the Contract requirements. All materials and work involved in the construction shall then be as represented by said drawings.
9. The ENGINEER's review of shop and working drawings will follow a general check made to ascertain conformance with the design concept and functional result of the project and compliance with the information given in the Contract Documents. The CONTRACTOR is responsible for details and accuracy, for conforming and correlating all quantities and dimensions at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for

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coordination of the work of all trades. Markings or comments placed on a submittal by the ENGINEER shall not be construed as relieving the CONTRACTOR from compliance with the Drawings and Specifications nor departures therefrom.

2.6 MANUALS

- A. The CONTRACTOR shall submit for review six (6) copies of all requested operating and maintenance manuals with the shop drawing submittals.
- B. The Operating and Maintenance manuals shall provide, as a minimum, the following information for any major component of the equipment and the total assembly:
 - 1. Installation Instructions.
 - 2. Startup and operating procedures.
 - 3. Maintenance and lubrication procedures.
 - 4. Equipment drawings with parts list.
 - 5. Electrical drawings.
 - 6. Troubleshooting guide.
 - 7. Recommended spare parts.
- C. The ENGINEER will retain one (1) copy and return three (3) copies to the CONTRACTOR.
- D. Prior to final payment, provide three (3) updated operating, maintenance manuals and parts lists for the OWNER's use.

2.7 FIELD DISTRIBUTION

- A. The CONTRACTOR shall be responsible for the required number of processed drawings or catalog cuts for field distribution to all necessary SUBCONTRACTORS.
- B. The CONTRACTOR shall be responsible for the prompt distribution of processed shop drawings to all other SUBCONTRACTORS whose work must be coordinated with the work progress.
- C. The CONTRACTOR shall have the overall responsibility for coordinating the necessary information to properly coordinate the work.

2.8 SUBMISSION OF SAMPLES

- A. Unless otherwise specified, the CONTRACTOR shall provide samples in duplicate and identify each sample by an appropriate tag or label listing the names of the Project, the OWNER, the ENGINEER and the CONTRACTOR and/or SUBCONTRACTOR as well as the exact identification of the sample. Tag or label shall be large enough to provide a blank space for review stamps.
- B. Samples of items submitted for destruction tests or for use in testing mixture with other materials will not be returned. Review of these items will be given by letter.
- C. When reviewed, one sample of each item, not submitted for destruction, will be returned to the CONTRACTOR and shall be kept and maintained in good condition in the CONTRACTOR'S office at the project site for later use in comparison with

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material actually delivered for the work. When samples of large fabricated items or of costly items are required, reviewed samples may be installed in the work if the exact location of such samples is recorded on the ENGINEER's Record Drawings.

2.9 CERTIFICATIONS AND TESTS

A. Manufacturer's Certifications

1. To assure that manufacturers and suppliers are aware of the use to which their equipment and products will be subjected, the CONTRACTOR shall require the manufacturer or manufacturer's representative to place the following certification on submittal date transmittals:

"This is to certify that we have examined the Plans and Specifications for the project and have ascertained that this equipment or material is suitable for the purpose and use intended.

_____ "

Authorized Signature

2.10 CONSTRUCTION PHOTOGRAPHS

- A. The CONTRACTOR shall provide pre-construction views, submitted in duplicate of the entire construction area before any work begins. Views shall be in the form of VHS video tapes and/or 8 inch by 10 inch photographs and/or digital photographs at the discretion of the ENGINEER.
- B. The CONTRACTOR shall provide, from commencement of Project through completion of all Work, clear, sharp, color, 8 inch by 10 inch photographs, in duplicate and/or digital photographs at the discretion of the ENGINEER. These progress photographs shall be submitted to the ENGINEER each month in conjunction with the current Monthly Estimate. Interior and/or exterior views shall be made as requested by the ENGINEER.
- C. Each photograph shall have the following information clearly noted on the picture. The information shall be typed or neatly printed on a label and placed on the face of the picture, and not obliterate important construction features.
 1. Date Photo was taken and photo number.
 2. Client/OWNER
 3. Project Title and Contract number.
 4. CONTRACTOR.
 5. Description of what is shown on the photo including direction.
- D. If digital photographs are utilized, both electronic and paper formats shall be submitted.

PART 3 – EXECUTION

3.1 CONTRACTOR'S REVIEW

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SUBMITTALS

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to ENGINEER.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of CONTRACTOR's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- C. Each submittal shall be accompanied by a Letter of Transmittal. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of CONTRACTOR's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents

3.2 ENGINEER'S ACTION

- A. General: The ENGINEER will not review submittals that do not bear CONTRACTOR's approval stamp and will return them without action.
- B. Action Submittals: ENGINEER will review each submittal, make marks to indicate corrections or modifications required, and return it to the CONTRACTOR. ENGINEER will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - 1. Approved, No Exceptions Taken.
 - 2. Rejected.
 - 3. Submit Specified Item.
 - 4. Approved, Make Corrections Noted.
 - 5. Revise and Resubmit.
- C. Informational Submittals: ENGINEER will review each submittal and will not return it, or will return it if it does not comply with requirements. ENGINEER will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SCOPE

- A. The CONTRACTOR is referred to conditions and requirements given in various Divisions of the Specifications and to other Sections of this Division, GENERAL REQUIREMENTS, insofar as such documents affect the work of this Section.
- B. The CONTRACTOR shall use the roads designated in the plans for access to the various sites. During use they shall be maintained to the standards necessary for safe operation for both the CONTRACTOR and the OWNER as these roads will not be for the exclusive use of the CONTRACTOR. These roads must be returned to the preconstruction condition or better before project closeout.

1.2 OCCUPYING PRIVATE LAND

- A. Written consent from the proper parties shall be obtained by the CONTRACTOR prior to entering or occupying with men, tools, materials or equipment any land other than his property or that of the OWNER for any purpose related to his performance of the Work on this Contract.

1.3 PROTECTION OF EXISTING UTILITIES

- A. The CONTRACTOR shall conduct his operations and take all special precautions necessary to protect equipment, utility lines, roadways and subsurface, submerged and overhead facilities which are to remain in place and undisturbed by his operations under this Contract. The offending CONTRACTOR shall immediately notify the OWNER of the facilities or areas which are disturbed, damaged or injured as a result of the CONTRACTOR'S operations, and determine the proper method of replacing or repairing the affected facilities at least to the conditions which existed prior to the CONTRACTOR'S operations. The offending CONTRACTOR shall, at his own expense, replace, repair or restore the affected facilities or areas to their original condition or shall reimburse the OWNER of said facilities or areas for such expenses as the said OWNER may accrue in performing the work, and the CONTRACTOR shall not be entitled to receive additional compensation under this Contract for such work.
- B. The CONTRACTOR shall notify the appropriate utilities of their operations and take all precautions required regarding protection of utilities. Contractor will contact the cellular telephone personnel before construction begins in order to minimize impacts to their equipment on the sites.

1.4 INTERFERENCE WITH/AND PROTECTION OF STREETS

- A. The CONTRACTOR(s) shall not close or obstruct any portion of a street, road or private way without obtaining permits therefor from the proper authorities. If any street or private way shall be rendered unsafe by the CONTRACTOR'S operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the appropriate authority.

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TEMPORARY FACILITIES AND CONTROLS

- B. The CONTRACTOR shall assume full responsibility for the maintenance and restoration of those roadways within the construction area and also those roadways on which equipment must operate to reach the construction area.
- C. Streets, roads, private ways and walks not closed shall be maintained passable by the CONTRACTOR at his expense, and the CONTRACTOR shall assume full responsibility for the adequacy and safety of provisions made.
- D. The CONTRACTOR shall notify the police and fire departments in writing, with a copy to the ENGINEER at least 48 hours in advance before closing any street. He shall coordinate with and cooperate with the police department in the establishment of alternate routes and, at his own expense, shall provide adequate, plainly marked detour signs. The signs shall be as required by the agency that has jurisdiction over the roadway.
- E. For the proper control of traffic, the CONTRACTOR shall provide an adequate number of persons employed at his own expense.

1.5 PROTECTION OF FACILITIES AND EQUIPMENT

- A. Until final acceptance of the Work under this Contract, the CONTRACTOR shall continuously maintain adequate protection, as noted in Paragraph 1.12 of this Section, of his work and work in progress from damage. The CONTRACTOR shall protect from loss or damage CONTRACTOR furnished and OWNER furnished machinery, equipment, materials and supplies being handled, including property considered for progress payments, wherever located, as well as other property of the OWNER from loss or damage arising out of or in connection with the prosecution of his work. He shall make good any such loss or damage. He shall adequately protect adjacent private and public property as provided by law and the Contract Documents.
- B. Since the CONTRACTOR shall not load or permit any part of any structure to be loaded with a weight that would endanger its safety it shall be the CONTRACTOR'S responsibility to verify the acceptable load carrying capacity of any structure his equipment or work will affect, unless the load carrying capacity is so stated by the ENGINEER.
- C. The CONTRACTOR shall immediately report in writing, giving full details, to the OWNER, all accidents which arise out of or in connection with the performance of the Work, whether on or adjacent to the site, which cause death, serious personal injury or substantial property damage. In addition, the accident shall be reported immediately by telephone or messenger to the ENGINEER. If a claim is made or suit is filed by anyone against the CONTRACTOR on account of any accident, the CONTRACTOR shall promptly report the facts in writing to the ENGINEER, with a copy to the OWNER, giving full details of the claim.
- D. The CONTRACTOR shall assume all risks of loss or damage of any kind to any vehicles, machinery, equipment, materials or supplies which he shall provide in doing the Work.
- E. The CONTRACTOR shall conduct his work in such a manner as to adequately protect property owned by others on or about the OWNER'S premises from damage by the construction operations.

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

1.6 DUST CONTROL

- A. During the progress of the work, the CONTRACTOR shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust.

1.7 SANITARY

- A. The CONTRACTOR shall provide, maintain and remove when no longer required, an adequate number of temporary, prefabricated, chemical-type toilets with proper enclosures for the use of workmen and women of all trades during construction. When connected to water and sewer, meet all code requirements and take precautions to prevent freezing.
- B. The CONTRACTOR shall keep toilets clean and supplied with toilet paper at all times and comply with all local and state health requirements and sanitary regulations.

1.8 ELECTRICITY

- A. The CONTRACTOR shall make necessary arrangements and supply and pay for all temporary electric service and lighting required during the entire construction period. Temporary electric service shall be of sufficient capacity and characteristics to supply proper current for various types of construction tools, motors, welding machines, lights, heating plant, air conditioning system, pumps and other items required.
- B. Provide all temporary wiring, panelboards, outlets, switches, fuses, controls and accessories. Locate plug-in boards so that a fifty (50) foot extension cord will reach all work requiring electricity.
- C. Provide and maintain temporary lighting with lamps as necessary to provide a safe work site.
- D. Materials used for temporary service shall not be used in permanent system unless specific permission of the ENGINEER is obtained.
- E. Remove temporary service and lighting when no longer required.
- F. The CONTRACTOR shall make provision to meter electricity required for his temporary office facilities and storage sheds.

1.9 HOISTS

- A. Each installer shall provide and erect all hoists, derricks, special tools and machinery necessary to install his materials and/or equipment and shall properly maintain them for as long as they may be required.

1.10 STAIRS, SCAFFOLDING, ETC.

- A. The CONTRACTOR shall provide, maintain and remove upon completion, all temporary facilities such as stairs, ladders, trench boxes, shoring, ramps, scaffolding, chutes and like facilities required for proper execution of the work of all trades. These facilities must

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TEMPORARY FACILITIES AND CONTROLS

meet safety requirements of all authorities having lawful jurisdiction over such work and these facilities must be maintained in safe condition at all times.

1.11 SECURITY

- A. The CONTRACTOR shall provide and pay for an adequate level of security protection to protect the property and material from pilferage, removal or damage at all times.

1.12 OFFICES AND STORAGE

- A. The CONTRACTOR shall, for his own use, provide and maintain such temporary office facilities as he may require and such watertight storage sheds with floors as may be required for storage of his materials which might be damaged by weather.
- B. Materials stored in the open at the project site shall be stored on planks or other dunnage as necessary to keep materials from contact with the ground and shall be covered with tarpaulins for protection from weather.
- D. All temporary offices and storage facilities shall be removed by their installer when no longer required.

END OF SECTION 015000

SECTION 017700

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 01 Section "Photographic Documentation" for submitting Final Completion construction photographs and negatives.
 - 3. Division 01 Section "Execution" for progress cleaning of Project site.
 - 4. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and photographic negatives (and/or digital files of photos), damage or settlement surveys, property surveys, and similar final record information.

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CLOSEOUT PROCEDURES

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Engineer, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

SECTION 017700

CLOSEOUT PROCEDURES

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit five copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Water Main Improvements and Booster Station Upgrade
 - b. Project Date
 - c. Thompson Engineering, Inc.
 - d. Name of Contractor.
 - e. Page number.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

SECTION 017700

CLOSEOUT PROCEDURES

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Sweep concrete floors broom clean in unoccupied spaces.
 - f. Remove labels that are not permanent.
 - g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - h. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - i. Replace parts subject to unusual operating conditions.
 - j. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - k. Leave Project clean and ready for occupancy.

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CLOSEOUT PROCEDURES

- B. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 02510
WATER DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes water-distribution piping and related components for installation of water main along County Road 13 and Highway 104.

1.3 DEFINITIONS

- A. DI: Ductile Iron.
- B. PE: Polyethylene plastic.
- C. PVC: Polyvinyl chloride plastic.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Detail precast concrete vault assemblies and indicate dimensions, method of field assembly, and components.
 - 1. Wiring Diagrams: Power, signal, and control wiring for alarms.
- C. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: For water valves and specialties to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements:

1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
 2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection (AWWA 651).
 3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.
- B. Piping materials shall bear label, stamp, or other markings of specified testing agency.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with ASTM F 645 for selection, design, and installation of thermoplastic water piping.
- E. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.
- F. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.
- G. NSF Compliance:
1. Comply with NSF 14 for plastic potable-water-service piping.
 2. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Preparation for Transport: Prepare valves, including fire hydrants, according to the following:
1. Ensure that valves are dry and internally protected against rust and corrosion.
 2. Protect valves against damage to threaded ends and flange faces.
 3. Set valves in best position for handling. Set valves closed to prevent rattling.
- B. During Storage: Use precautions for valves, including fire hydrants, according to the following:
1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
 2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

- C. Handling: Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.
- D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- F. Protect flanges, fittings, and specialties from moisture and dirt.
- G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.7 PROJECT CONDITIONS

- A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service according to requirements indicated:
 - 1. Notify Fairhope Utilities no fewer than three days in advance of proposed interruption of service.
 - 2. Do not proceed with interruption of water-distribution service without owner' written permission.

1.8 COORDINATION

- A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.1 DUCTILE-IRON PIPE AND FITTINGS

- A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.
 - 1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - 2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
- B. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 2. Gaskets: AWWA C111, rubber.
- C. Grooved-Joint, Ductile-Iron Pipe: AWWA C151, with cut, rounded-grooved ends.
1. Grooved-End, Ductile-Iron Pipe Appurtenances:
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Anvil International, Inc.
 - 2) Victaulic Company of America.
 - 3) Approved Equals
 - c. Grooved-End, Ductile-Iron Fittings: ASTM A 47/A 47M, malleable-iron castings or ASTM A 536, ductile-iron castings with dimensions matching pipe.
 - d. Grooved-End, Ductile-Iron-Piping Couplings: AWWA C606, for ductile-iron-pipe dimensions. Include ferrous housing sections, gasket suitable for water, and bolts and nuts.
- D. Flanges: ASME 16.1, Class 125, cast iron.

2.2 PE PIPE AND FITTINGS

- A. PE, ASTM Pipe: ASTM D 2239, SDR No. 5.3, 7, or 9; with PE compound number required to give pressure rating not less than [160 psig (1100 kPa)]
1. Insert Fittings for PE Pipe: ASTM D 2609, made of PA, PP, or PVC with serrated male insert ends matching inside of pipe. Include bands or crimp rings.
 2. Molded PE Fittings: ASTM D 3350, PE resin, socket- or butt-fusion type, made to match PE pipe dimensions and class.
- B. PE, AWWA Pipe: AWWA C906, DR No. 7.3, 9, or 9.3; with PE compound number required to give pressure rating not less than [160 psig (1100 kPa)]
1. PE, AWWA Fittings: AWWA C906, socket- or butt-fusion type, with DR number matching pipe and PE compound number required to give pressure rating not less than [160 psig (1100 kPa)]
 2. Pipe in paragraph below is FMG approved in NPS 2 to NPS 24 (DN 50 to DN 600).
 3. Molded PE Fittings: ASTM D 3350, PE resin, socket- or butt-fusion type, made to match PE pipe dimensions and class.

2.3 PVC PIPE AND FITTINGS

- A. PVC, AWWA Pipe: AWWA C900, AWWA C905 with bell end with gasket, and with spigot end.
1. Comply with UL 1285 for fire-service mains if indicated.
 2. PVC Fabricated Fittings: AWWA C900, AWWA C905, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
 3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
 4. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - a. Gaskets: AWWA C111, rubber.
 5. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern.
 - a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.

2.4 PIPING SPECIALTIES

- A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.
- B. Tubular-Sleeve Pipe Couplings:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cascade Waterworks Manufacturing.
 - b. Dresser, Inc.; Dresser Piping Specialties.
 - c. Ford Meter Box Company, Inc. (The); Pipe Products Div.
 - d. Hays Fluid Controls; a division of ROMAC Industries Inc.
 - e. JCM Industries.
 - f. Smith-Blair, Inc.
 - g. Viking Johnson.
 3. Description: Metal, bolted, sleeve-type, reducing or transition coupling, with center sleeve, gaskets, end rings, and bolt fasteners and with ends of same sizes as piping to be joined.
 - a. Standard: AWWA C219.
 - b. Center-Sleeve Material: Ductile iron
 - c. Gasket Material: Natural or synthetic rubber.
 - d. Pressure Rating: 150 psig (1035 kPa) minimum.

- e. Metal Component Finish: Corrosion-resistant coating or material.

C. Split-Sleeve Pipe Couplings:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Victaulic Depend-O-Lok.
 - b. Approved Equal
3. Description: Metal, bolted, split-sleeve-type, reducing or transition coupling with sealing pad and closure plates, O-ring gaskets, and bolt fasteners.
 - a. Standard: AWWA C219.
 - b. Sleeve Material: Stainless steel
 - c. Sleeve Dimensions: Of thickness and width required to provide pressure rating.
 - d. Gasket Material: O-rings made of EPDM rubber, unless otherwise indicated.
 - e. Pressure Rating: 150 psig (1035 kPa) minimum.
 - f. Metal Component Finish: Corrosion-resistant coating or material.

2.5 GATE VALVES

A. AWWA, Cast-Iron Gate Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American AVK Co.; Valves & Fittings Div.
 - b. American Cast Iron Pipe Co.; American Flow Control Div.
 - c. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
 - d. Crane Co.; Crane Valve Group; Stockham Div.
 - e. East Jordan Iron Works, Inc.
 - f. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - g. McWane, Inc.; Kennedy Valve Div.
 - h. McWane, Inc.; M & H Valve Company Div.
 - i. McWane, Inc.; Tyler Pipe Div.; Utilities Div.
 - j. Mueller Co.; Water Products Div.
 - k. NIBCO INC.
 - l. U.S. Pipe and Foundry Company.
3. Nonrising-Stem, Metal-Seated Gate Valves:

- a. Description: Gray- or ductile-iron body and bonnet; with cast-iron or bronze double-disc gate, bronze gate rings, bronze stem, and stem nut.
 - 1) Standard: AWWA C500.
 - 2) Minimum Pressure Rating: 200 psig (1380 kPa).
 - 3) End Connections: Mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.
 - 4. Nonrising-Stem, Resilient-Seated Gate Valves:
 - a. Description: Gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 200 psig (1380 kPa).
 - 3) End Connections: Mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.
 - 5. Nonrising-Stem, High-Pressure, Resilient-Seated Gate Valves:
 - a. Description: Ductile-iron body and bonnet; with bronze or ductile-iron gate, resilient seats, bronze stem, and stem nut.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 250 psig (1725 kPa).
 - 3) End Connections: Push on or mechanical joint.
 - 4) Interior Coating: Complying with AWWA C550.
 - 6. OS&Y, Rising-Stem, Metal-Seated Gate Valves:
 - a. Description: Cast- or ductile-iron body and bonnet, with cast-iron double disc, bronze disc and seat rings, and bronze stem.
 - 1) Standard: AWWA C500.
 - 2) Minimum Pressure Rating: 200 psig (1380 kPa).
 - 3) End Connections: Flanged.
 - 7. OS&Y, Rising-Stem, Resilient-Seated Gate Valves:
 - a. Description: Cast- or ductile-iron body and bonnet, with bronze or gray- or ductile-iron gate, resilient seats, and bronze stem.
 - 1) Standard: AWWA C509.
 - 2) Minimum Pressure Rating: 200 psig (1380 kPa).
 - 3) End Connections: Flanged.
- B. UL/FMG, Cast-Iron Gate Valves:
- 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Cast Iron Pipe Co.; American Flow Control Div.
 - b. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
 - c. Crane Co.; Crane Valve Group; Stockham Div.
 - d. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - e. McWane, Inc.; Kennedy Valve Div.
 - f. McWane, Inc.; M & H Valve Company Div.
 - g. Mueller Co.; Water Products Div.
 - h. NIBCO INC.
 - i. U.S. Pipe and Foundry Company.

3. UL/FMG, Nonrising-Stem Gate Valves:
 - a. Description: Iron body and bonnet with flange for indicator post, bronze seating material, and inside screw.
 - 1) Standards: UL 262 and FMG approved.
 - 2) Minimum Pressure Rating: 175 psig (1207 kPa).
 - 3) End Connections: Flanged.

4. OS&Y, Rising-Stem Gate Valves:
 - a. Description: Iron body and bonnet and bronze seating material.
 - 1) Standards: UL 262 and FMG approved.
 - 2) Minimum Pressure Rating: 175 psig (1207 kPa).
 - 3) End Connections: Flanged.

C. Bronze Gate Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Crane Co.; Crane Valve Group; Crane Valves.
 - b. Crane Co.; Crane Valve Group; Jenkins Valves.
 - c. Crane Co.; Crane Valve Group; Stockham Div.
 - d. Hammond Valve.
 - e. Milwaukee Valve Company.
 - f. NIBCO INC.
 - g. Red-White Valve Corporation.

3. OS&Y, Rising-Stem Gate Valves:
 - a. Description: Bronze body and bonnet and bronze stem.
 - 1) Standards: UL 262 and FMG approved.

- 2) Minimum Pressure Rating: 175 psig (1207 kPa).
 - 3) End Connections: Threaded.
4. Nonrising-Stem Gate Valves:
- a. Description: Class 125, Type 1, bronze with solid wedge, threaded ends, and malleable-iron handwheel.
 - 1) Standard: MSS SP-80.

2.6 GATE VALVE ACCESSORIES AND SPECIALTIES

A. Tapping-Sleeve Assemblies:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Cast Iron Pipe Co.; Waterous Co. Subsidiary.
 - b. East Jordan Iron Works, Inc.
 - c. Flowserve.
 - d. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - e. McWane, Inc.; Kennedy Valve Div.
 - f. McWane, Inc.; M & H Valve Company Div.
 - g. Mueller Co.; Water Products Div.
 - h. U.S. Pipe and Foundry Company.
3. Description: Sleeve and valve compatible with drilling machine.
 - a. Standard: MSS SP-60.
 - b. Tapping Sleeve: Cast- or ductile-iron or stainless-steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.
 - c. Valve: AWWA, cast-iron, nonrising-stem, resilient-seated gate valve with one raised face flange mating tapping-sleeve flange.

B. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches (125 mm) in diameter.

1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.

C. Indicator Posts: UL 789, FMG-approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.

2.7 COMBINATION PRESSURE REDUCING, PRESSURE SUSTAINING GLOBE VALVE

A. Water Control Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Basis for Design: CLA-VAL Model 92-01
3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CLA-VAL Automatic Control Valves.
 - b. Flomatic Corporation.
 - c. OCV Control Valves.
 - d. Watts Regulator Co.; Ames Fluid Control Systems.
 - e. Watts Regulator Co.; Watts ACV Division.
 - f. Wilkins; a Zurn company.
4. Description: Pilot-operation, single-seated main water control valve with AWWA C550 or FDA-approved, interior epoxy coating. Include small pilot control valve, restrictor device, specialty fittings, and sensor piping.
 - a. Pressure Rating: Initial pressure of 150 psig minimum.
 - b. Main Valve Body & Cover: Cast- or ductile-iron body ASTM A-536 with FDA-approved, interior epoxy coating.
 - 1) Size: 8"
 - 2) Pattern: Globe-valve design.
 - 3) Trim: Stainless steel.
 - c. End Connections: Flanged F.F, 125/150lb. ANSI B16.42
 - d. Body & Cover: Ductile Iron ASTM A-536
 - e. Body and Bonnet Bolting: ASTM 307, Gr. B, zinc plated (stainless steel for buried service)
 - f. Disc: Buna N Rubber
 - g. Stem, Nut, and Spring, Stainless Steel
 - h. Diaphragm: Nylon Reinforced Buna N Rubber

2.8 RELIEF VALVES

A. Air-Release Valves:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following
2. Basis of Design: APCO Model No. 149C

3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Crispin-Multiplex Manufacturing Co.
 - b. GA Industries, Inc.
 - c. Val-Matic Valve & Manufacturing Corp
 - d. Apco

4. Description: Hydromechanical device to automatically release accumulated air.
 - a. Standard: AWWA C512.
 - b. Pressure Rating: 300 psig
 - c. Trim Material: Stainless steel
 - d. Water Inlet Size: 4"
 - e. Air Outlet Size: 4"
 - f. Design Air-Release Capacity: 100 psig pipeline pressure.

2.9 FIRE HYDRANTS

A. Wet-Barrel Fire Hydrants:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American AVK Co.; Valves & Fittings Div.
 - b. Jones, James Company.
 - c. McWane, Inc.; Clow Valve Co. Div. (Corona).
 - d. McWane, Inc.; Clow Valve Co. Div. (Oskaloosa).
 - e. Mueller Co.; Water Products Div.

3. Description: Freestanding, with one NPS 4-1/2 (DN 115) and two NPS 2-1/2 (DN 65) outlets, NPS 6 (DN 150) threaded or flanged inlet, and base section with NPS 6 (DN 150) mechanical-joint inlet. Include interior coating according to AWWA C550.
 - a. Standard: AWWA C503.
 - b. Pressure Rating: 150 psig (1035 kPa) minimum.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Refer to Division ALDOT Specifications, Division 200 for excavating, trenching, and backfilling.

3.2 PIPING APPLICATIONS

- A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications.
- B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
- C. Do not use flanges or unions for underground piping.
- D. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.

3.3 VALVE APPLICATIONS

- A. General Application: Use mechanical-joint-end valves for NPS 3 (DN 80) and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 (DN 50) and smaller installation.
- B. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
 - 1. Underground Valves, NPS 3 (DN 80) and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated gate valves with valve box.
 - 2. Underground Valves, NPS 4 (DN 100) and Larger, for Indicator Posts: UL/FMG, cast-iron, nonrising-stem gate valves with indicator post.
 - 3. Use the following for valves in vaults and aboveground:
 - a. Gate Valves, NPS 2 (DN 50) and Smaller: Bronze, rising stem.
 - b. Gate Valves, NPS 3 (DN 80) and Larger: AWWA, cast iron, OS&Y rising stem, resilient seated
 - c. Check Valves: AWWA C508 swing type.
 - 4. Pressure-Reducing Valves: Use for water-service piping in vaults and aboveground to control water pressure.
 - 5. Relief Valves: Use for water-service piping in vaults and aboveground.
 - a. Air-Release Valves: To release accumulated air.
 - b. Air/Vacuum Valves: To release or admit large volume of air during filling of piping.
 - c. Combination Air Valves: To release or admit air.
 - 6. Detector Check Valves: Use for water-service piping in vaults and aboveground to detect unauthorized use of water.

3.4 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. See Division 2 Section "Piped Utilities - Basic Materials and Methods" for piping-system common requirements.

3.5 PIPING INSTALLATION

- A. Water-Main Connection: Arrange with utility company for tap of size and in location indicated in water main.
- B. Water-Main Connection: Tap water main according to requirements of water utility company and of size and in location indicated.
- C. Make connections larger than NPS 2 (DN 50) with tapping machine according to the following:
 - 1. Install tapping sleeve and tapping valve according to MSS SP-60.
 - 2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
 - 3. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.
 - 4. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.
- D. Make connections NPS 2 (DN 50) and smaller with drilling machine according to the following:
 - 1. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
 - 2. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
 - 3. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
 - 4. Install corporation valves into service-saddle assemblies.
 - 5. Install manifold for multiple taps in water main.
 - 6. Install curb valve in water-service piping with head pointing up and with service box.
- E. Install ductile-iron, water-service piping according to AWWA C600 and AWWA M41.
- F. Install PE pipe according to ASTM D 2774 and ASTM F 645.
- G. Install PVC, AWWA pipe according to ASTM F 645 and AWWA M23.
- H. Bury piping with depth of cover over top at least 36 inches and according to the following:
 - 1. Under Driveways: With at least 36 inches cover over top.
 - 2. Under Roadways: With at least 48 inches cover over top of encasement

- I. Install piping by tunneling or jacking, or combination of both, under streets and other obstructions that cannot be disturbed.
- J. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.6 JOINT CONSTRUCTION

- A. See Division 2 Section "Piped Utilities - Basic Materials and Methods" for basic piping joint construction.
- B. Make pipe joints according to the following:
 - 1. Copper-Tubing, Pressure-Sealed Joints: Use proprietary crimping tool and procedure recommended by copper, pressure-seal-fitting manufacturer.
 - 2. Ductile-Iron Piping, Gasketed Joints for Water-Service Piping: AWWA C600 and AWWA M41.
 - 3. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL 194.
 - 4. Ductile-Iron Piping, Grooved Joints: Cut-groove pipe. Assemble joints with grooved-end, ductile-iron-piping couplings, gaskets, lubricant, and bolts according to coupling manufacturer's written instructions.
 - 5. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer's written instructions.
 - 6. PVC Piping Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to ASTM D 2774 or ASTM D 3139 and pipe manufacturer's written instructions.
 - 7. Fiberglass Piping Bonded Joints: Use adhesive and procedure recommended by piping manufacturer.

3.7 ANCHORAGE INSTALLATION

- A. Anchorage, General: Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
 - 1. Concrete thrust blocks.
 - 2. Locking mechanical joints.
 - 3. Set-screw mechanical retainer glands.
 - 4. Bolted flanged joints.
 - 5. Heat-fused joints.
 - 6. Pipe clamps and tie rods.
- B. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
 - 1. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
 - 2. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.
 - 3. Bonded-Joint Fiberglass, Water-Service Piping: According to AWWA M45.
 - 4. Fire-Service-Main Piping: According to NFPA 24.

- C. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.8 VALVE INSTALLATION

- A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.
- B. AWWA Valves Other Than Gate Valves: Comply with AWWA C600 and AWWA M44.
- C. UL/FMG, Gate Valves: Comply with NFPA 24. Install each underground valve and valves in vaults with stem pointing up and with vertical cast-iron indicator post.
- D. UL/FMG, Valves Other Than Gate Valves: Comply with NFPA 24.
- E. MSS Valves: Install as component of connected piping system.
- F. Corporation Valves and Curb Valves: Install each underground curb valve with head pointed up and with service box.
- G. Pressure-Reducing Valves: Install in vault or aboveground between shutoff valves
- H. Relief Valves: Comply with AWWA C512. Install aboveground with shutoff valve on inlet.

3.9 CONCRETE VAULT INSTALLATION

- A. Install precast concrete vaults according to ASTM C 891.

3.10 PROTECTIVE ENCLOSURE INSTALLATION

- A. Install concrete base level and with top approximately 2 inches above grade.
- B. Install protective enclosure over valves and equipment.
- C. Anchor protective enclosure to concrete base.

3.11 FIRE HYDRANT INSTALLATION

- A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.
- B. Wet-Barrel Fire Hydrants: Install with valve below frost line. Provide for drainage.
- C. AWWA Fire Hydrants: Comply with AWWA M17.
- D. UL/FMG Fire Hydrants: Comply with NFPA 24.

3.12 FIELD QUALITY CONTROL

- A. Piping Tests: Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
- B. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.
 - 1. Increase pressure in 50-psig (350-kPa) increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to 0 psig (0 kPa). Slowly increase again to test pressure and hold for 1 more hour. Maximum allowable leakage is 2 quarts (1.89 L) per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.
- C. Prepare reports of testing activities.

3.13 IDENTIFICATION

- A. Install continuous underground warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Division 2 Section "Earthwork."
- B. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel. See Division 2 Section "Piped Utilities - Basic Materials and Methods" for identifying devices.

3.14 CLEANING

- A. Clean and disinfect water-distribution piping as follows:
 - 1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
 - 2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
 - 3. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:
 - a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
 - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for 3 hours.
 - c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.

- d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.

B. Prepare reports of purging and disinfecting activities.

END OF SECTION 02510

RESIDENTIAL OVERHEAD STEEL GARAGE DOORS

PART 1 GENERAL

1.1 SCOPE:

- A. Provide all labor, material and equipment necessary to furnish and install one (1) 10'W x 7'H residential overhead steel garage door at the Rock Creek Booster Station as shown on the Drawings, and as specified herein.

1.2 RELATED SECTIONS

- A. Section 13300 – Submittals
- B. Section 09900 - Painting

1.3 REFERENCES

- A. [ANSI/DASMA 108](#) - Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference
- B. UL: Underwriters Laboratories, Inc.
- C. ULC: Underwriters Laboratories of Canada.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Wind Loads: Design and size components to withstand loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.
 - 1. Design pressure of 20 lb/sq ft.
- B. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

- A. Submit under provisions of Section 13300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Indicate plans and elevations including opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

RESIDENTIAL OVERHEAD STEEL GARAGE DOORS

- D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- E. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Authorized representative of the manufacturer with minimum five years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened labeled packaging until ready for installation.
- B. Protect materials from exposure to moisture until ready for installation.
- C. Store materials in a dry, ventilated weathertight location.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 WARRANTY

- A. Traditional Steel Collection 173/174/177 Series Non-Insulated. Warranty: Limited lifetime against splitting and cracking, 10 year on hinge and track and all other components for 1 year.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. This installation was designed using products available from: Overhead Door Corp., 2501 S. State Hwy. 121 Bus., Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 929-3667. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: sales@overheaddoor.com.
- B. Substitutions: Not permitted. This door has been approved by the Honours Golf Course for use at this building.

RESIDENTIAL OVERHEAD STEEL GARAGE DOORS

2.2 RESIDENTIAL METAL OVERHEAD DOORS

- A. Non-Insulated Steel Sectional Overhead Doors: Traditional Steel Collection 173/174/177 Series Non-Insulated Steel Doors by Overhead Door Corporation.
 - 1. Door Assembly: High tensile strength steel construction.
 - a. Size: As indicated on the Drawings.
 - b. Panel Thickness: 2 inches (51 mm) nominal.
 - c. Panel Style: tongue in groove
 - Short Panel, 173 Series.
 - Long Panel, 174 Series.
 - V12 Panel, 177 Series.
 - d. Exterior Steel: Residential grade high strength hot-dipped galvanized steel with an embossed simulated wood grain texture. 24 gauge (.0229) nominal.
 - e. Windload Design: Provide to meet the Design/Performance requirements specified.
 - f. Window Design:
 - No windows.
 - (a)
 - g. Finish/Color: Two coat baked-on polyester. Color as follows:
 - White.
 - See 3.5-D
 - h. Hardware: Standard garage door hardware.
 - i. Lock:
 - Interior mounted slide lock.
 - Optional keyed lock.
 - j. Bottom fixture - DASMA 103 tamper resistant fasteners.
 - k. Weatherstripping: Extruded PVC bulb-type strip at bottom.
 - l. Track: Provide track as recommended by manufacturer to suit loading required and clearances available.
 - m. Nylon rollers.
 - 2. Manual Operation.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings and substrates have been properly prepared.
- B. Verify wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.
- C. Verify electric power is available and of correct characteristics.
- D. If preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

RESIDENTIAL OVERHEAD STEEL GARAGE DOORS

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install overhead doors, track and openers in accordance with approved shop drawings and the manufacturer's printed instructions.
- B. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- C. Anchor assembly to wall construction and building framing without distortion or stress.
- D. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- E. Fit and align door assembly including hardware.

3.4 CLEANING AND ADJUSTING

- A. Adjust door assembly to smooth operation and in full contact with weather stripping.
- B. Clean doors and frames.
- C. Remove temporary labels and visible markings.

3.5 PROTECTION

- A. Do not permit construction traffic through overhead door openings after adjustment and cleaning.
- B. Protect installed products until completion of project.
- C. Touch-up, damaged coatings and finishes and repair minor damage before Substantial Completion.
- D. The CONTRACTOR shall paint the door a color matching the existing building color (sage green) using materials and methods recommended by the door Manufacturer. See specification Section 09900.

END OF SECTION

SECTION 09900

PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. CONTRACTOR shall provide all labor, materials, tools, equipment and incidentals as shown, specified and required to furnish and apply paint systems.
 - a. CONTRACTOR is responsible for surface preparation and painting of all new and existing interior and exterior items and surfaces throughout the Project areas included under this and other Sections.
2. Unless otherwise noted the CONTRACTOR shall paint the following:
 - a. All new items except where the natural finish of the material is specified as a corrosion-resistant material not requiring paint; or is specifically shown as indicated by written note, or specified as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint them the same as adjacent similar materials or areas.
 - b. Mechanical equipment furnished with a finished paint coating shall not be painted unless specifically noted within the Plans or Specifications.
 - c. Mechanical equipment to be painted shall include, but not be limited to, the following:
 - 1). Pumps, piping, valves, hangers and supports.
 - d. Electrical items to be painted include, but are not limited to, the following:
 - 1). Exposed conduit work, junction and pull boxes, supports and hangers and accessories.
 - 2). The following electrical items shall not be painted by the CONTRACTOR: switchgear, panels, motor control centers, and variable speed drives.
 - 3). Drive enclosures and other electrical/electronic enclosures furnished with factory finish. The CONTRACTOR shall repair surface scratches with enclosure manufacturer supplied touch up paint.
3. Types of painting Work required include, but are not necessarily limited to, the following:
 - a. Surface preparation and painting of all new items, both interior and exterior, and other surfaces are included in the Work, except as otherwise shown or specified.

B. Work Not Included:

1. Shop-Priming: Shop-priming of structural metal, miscellaneous metal fabrications, other metal items and fabricated components such as shop-fabricated or factory-built heating and ventilating and electrical equipment or accessories shall conform to applicable requirements of this Section but are included under other Specifications.
2. Operating Parts and Labels:
 - a. Do not paint over labels required by governing authorities having jurisdiction, or any equipment identification, performance rating, name or nomenclature plates.

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C. Description of Colors and Finishes:

1. Color Selection:

- a. The OWNER shall select the color of the paint to be applied as part of this contract from CONTRACTOR furnished color chips.

1.2 QUALITY ASSURANCE

A. Applicator Qualifications:

1. Engage a single applicator regularly performing installation of paint materials, with documented skill and successful experience in the installation of the types of materials required and who agrees to employ only tradesmen who are trained, skilled and have successful experience in installing the types of materials specified.

B. Source Quality Control:

1. Obtain materials only from manufacturers who will provide the services of a qualified manufacturer's representative at the Site at the commencement of painting Work to advise on materials, installation and finishing techniques, at the completion of the Work to advise ENGINEER on the acceptability of completed Work, and during the course of the Work as may be requested by ENGINEER.

C. Requirements of Regulatory Agencies:

1. Comply with the regulations of governing authorities having jurisdiction for air quality and material disposal regulations. Revise painting systems specified herein in order to provide manufacturer's regulatory agency approved painting systems, where required.

D. Reference Standards: Comply with applicable provisions and recommendations of the following, except where otherwise shown or specified:

1. ASTM D 4258, Surface Cleaning Concrete for Coating, Standard Practice for.
2. Steel Structures Painting Council, SSPC - Volume 2, Systems and Specifications.
3. Steel Structures Painting Council, SSPC - VIS 2, Visual Standard for Evaluating Degree of Rusting on Painted Steel Surfaces.
4. American Water Works Association, Inc. (AWWA) Standards.
5. Steel Structures Painting Council (SSPC) Specifications:
 - SSPC-SP 1 Solvent Cleaning
 - SSPC-SP 6 Commercial Blast Cleaning
 - SSPC-SP 10-63 Near White Blast Cleaning

1.3 SUBMITTALS

A. Samples: Submit for approval the following:

1. Copies of manufacturer's complete color charts for each coating system.

B. Shop Drawings: Submit for approval the following:

1. Copies of manufacturer's technical information and test performance data, including paint analysis, VOC content in comparison to maximum allowed by Specifications, and application instructions for each material proposed for use.

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C. Certificates: Submit for approval the following:

1. Certificate stating that materials meet or exceed Specification requirements.

1.4 PROJECT CONDITIONS

A. Site Facilities

1. All paint shall be applied at or above the minimum temperature recommended by the system manufacturer. The provision of all supplemental heat energy sources, power and equipment is the responsibility of CONTRACTOR.
2. Do not use heat sources which emit carbon dioxide or carbon monoxide into areas being painted. Properly locate and vent all such heat sources to the exterior such that paint systems are unaffected by exhaust products.
3. Paint shall not be applied to wet or damp surfaces, and shall not be applied in rain, snow, fog, mist, or when the surface temperature will be less than 5 degrees Fahrenheit above the dew point.
4. No paint shall be applied when it is expected that the surface temperature will drop below the manufacturer's recommendation within eight hours after application of the paint.
5. Each application of materials shall be worked into corners, crevices, joints, etc., and distributed evenly over flat surfaces. Spraying techniques that result in a uniform wet pattern shall be used and dry spraying shall be avoided. Dry spray shall be removed prior to coating being applied.
6. All bolts, welds, sharp edges, and difficult access areas shall receive a primer brush coat or spray coat prior to primer spray application.

B. Protection

1. Cover or otherwise protect finished Work of other trades and surfaces not being painted concurrently or not to be painted.
2. Provide fire extinguishers and post caution signs warning against smoking and open flame when working with flammable materials.
3. It shall be the responsibility of the CONTRACTOR to locate and avoid damage to any and all existing water, gas, sewer, electric, telephone, and other utilities, structures, or appurtenances. The CONTRACTOR shall repair or pay for all damages caused by his operations or his personnel, to existing utilities, structures, appurtenances, or properties, either below ground or above ground and shall settle in full all damage suites which may arise as a result of his operations.

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PART 2 - PRODUCTS

2.1 PAINTING SYSTEMS

- A. New Ferrous Metals; Non-Submerged, Interior Exposed (piping, valves, supports, tankage, etc. not furnished with a special coating detailed elsewhere.) Finish color: ANSI/NSF True Blue/Safety 11SF.

TABLE 1

Surface Preparation	Specific Components	Coats, DMFTPC and Coverage
Reference: 3.2.A	Primer: (unless furnished with epoxy primer) Primer: Tnemec Series 66 Hi-Build Epoxoline Finish: Tnemec Series 66 Hi-Build Epoxoline	1 Coat, 3.0 dry mils 240 S.F./Gal. 1 Coat, 6.0 dry mils S.F./Gal.

- B. New Metal Overhead Door; Finish color: Match exterior color of building (sage green).

TABLE 1

Surface Preparation	Specific Components	Coats, DMFTPC and Coverage
Reference: 3.2.A Power wash to remove all contaminants. Sand all surfaces to provide a uniform profile (1 mil minimum).	Primer: Tnemec FC27 Typoxy Finish: Tnemec 73U Endura-Sheild	2.0-3.0 mils S.F./Gal. 1 Coat, 2.0-3.0 mils S.F./Gal.

2.2 PAINTING SYSTEM COMPONENTS AND MANUFACTURERS

- A. Painting System Manufacturers: An acceptable manufacturer for each specific painting system is referenced in Paragraph 2.1. Inclusion of a manufacturer in Paragraph 2.2.A.1 does not mean that any paint systems of that listed manufacturer is automatically

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considered "equal" to the paint systems of manufacturers referenced under specific paint systems in Paragraph 2.1. Where two or more manufacturers are included under specific paint systems, the products of those manufacturers named are considered "equal" by ENGINEER. Products of other listed, or unlisted, manufacturers shall be submitted to ENGINEER for review.

1. Product and Manufacturer: Products have been referenced under specific painting systems by manufacturer's name and product designation to establish a basis of comparison within the industry, provide painting systems as manufactured by the following:
 - a. Carboline Company.
 - b. Induron Coatings, Incorporated.
 - c. Sentry Polymers, Incorporated.
 - d. E. I. duPont de Nemours & Company.
 - e. Tnemec Company, Incorporated.
2. Or equal.

PART 3 - EXECUTION

3.1 INSPECTION

- A. CONTRACTOR and applicator shall examine the areas and conditions under which painting Work is to be performed and notify ENGINEER in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film capable of performing in accordance with claims made in manufacturer's product literature for the surfaces and conditions encountered.
- C. Do not paint over existing paint where there is no assurance that existing paint will provide an acceptable surface for the long-term adherence and durability of painting systems specified or where the manufacturer requires removal of all existing paint in order to recommend the use of the specified painting system.

3.2 SURFACE PREPARATION

- A. General
 1. Perform all preparation and cleaning procedures as specified herein and in strict accordance with paint manufacturer's instructions for each particular surface and atmospheric condition.
 2. CONTRACTOR shall remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items already in-place and that do not

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require field-painting, or provide effective surface-applied protection prior to surface preparation and painting operations.

3. CONTRACTOR shall remove, as necessary, items which must be field-painted where adjacent surfaces cannot be completely protected from splatter or overspray. Following completion of painting of each space or area, the removed items shall be reinstalled by workers skilled in the trades involved.
4. Clean surfaces to be painted before applying any painting system components. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning.
5. Prepare all surfaces which were improperly shop-painted, and all abraded or rusted shop-painted surfaces, as specified.

B. Ferrous Metals:

1. Comply with manufacturer's recommendations for type and size of abrasive in order to provide a surface profile meeting manufacturer's painting system requirements for type, function and location of surface. Verify that manufacturer recommended profiles have been achieved on prepared surfaces. Report profiles to ENGINEER using Test Method C in compliance with ASTM D 4417.
2. Clean non-submerged ferrous surfaces including structural steel and miscellaneous metal to be shop-primed, of all oil, grease, dirt, mill scale and all other contamination by commercial blast cleaning complying with SSPC-SP6, at the time of paint system application, using SSPC VIS 1 as a standard of comparison.
3. Clean submerged ferrous surfaces including structural steel and miscellaneous metal to be shop-primed, of all oil, grease, dirt, mill scale and all other contamination by near-white blasting complying with SSPC-SP10, at the time of painting system application, using SSPC VIS 1 as a standard of comparison.
4. Clean non-submerged, ferrous surfaces that have not been shop-coated of all oil, grease, dirt, loose mill scale and all other contamination by commercial blasting complying with SSPC-SP6, at the time of painting system application, using SPC VIS 1 as a standard of comparison.
5. Clean submerged ferrous surfaces that have not been shop-coated or that have been improperly shop-coated, of all oil, grease, dirt, mill scale and all other contamination by near-white blasting complying with SSPC-SP10, at the time of painting system application, using SSPC VIS 1 as a standard of comparison.
6. Touch-up shop-applied prime coats which have damaged or have bare areas, with primer recommended by manufacturer after commercial blasting complying with SSPC-SP6, at the time of painting system application, using SSPC VIS 1 as a standard of comparison, to provide a surface profile of not less than 1 mil.
7. Power tool clean, complying with SSPC-SP3, in order to remove welding splatter and slag.
8. Remove all rust and contamination on existing ferrous metals to sound surfaces by power tool cleaning complying with SSPC SP11 to provide a surface profile of not less than 1 mil.

C. Concrete

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1. All concrete surfaces to be coated shall be clean and dry. All oil, grease, dirt, etc., shall be removed either by steam cleaning with detergent or by scrubbing with a strong commercial type detergent and flushing with water. All chemical contamination shall be neutralized and flushed.
 2. Old paint and unremoved tar stains shall be solvent cleaned with naphtha, trichloroethylene, or perchloroethylene. Proper safety precautions shall be observed if this step is necessary. The surface shall be flushed with fresh water and dried.
 3. Rough, chemically attacked and/or abraded floor and tank interior shall be rebuilt. If a newly poured concrete surface contains air, water pits, splatter, protrusions or other surface irregularities, it shall be rebuilt while the concrete is still "green." Rebuilding shall consist of the following:
 - a. Smooth the concrete surface, breaking down all rough protrusions.
 - b. The entire area shall be sandblasted to remove loose, powdery concrete and open sub-surface airholes. Dust shall be removed from the blasted surface by vacuuming or blowing with dry, oil-free air.
 - c. Areas where the aggregate is exposed or deep pot holes exist shall be filled with a cement grout mix to provide a uniform surface texture.
 4. Concrete surfaces which do not require rebuilding shall be properly prepared. This preparation shall be done in accordance with the coating manufacturer's latest written Application Instructions.
 - a. Proper preparation shall consist of either acid-etching or sandblasting for horizontal surfaces.
 - b. Proper preparation shall consist of light sandblasting or high pressure (100 psi) water blast for vertical surfaces.
 - c. For concrete in immersion, brush blast the concrete as specified in Steel Structures Painting Council Specification SP-7-63 to remove laitance, blow-off with clean dry 100 psi air.
 - d. For concrete in non-immersion of walls and ceilings, blow-off with clean, dry, 100 psi air to remove contaminants.
 5. Concrete shall be fully cured prior to coating. Fully cured shall be defined as: 28 days at 75°F, or 40 days at 50°F, or equal. If concrete admixtures or concrete substitutes are used, increase the cure time by 1/3.
 6. Concrete floors shall be acid etched with 15 percent strength hydrochloric acid, rinse, neutralize, rinse second time. Check surface for laitance, by "wire brush" test. If laitance still exists, repeat the etching, and rinsing process until the surface is free of laitance.
 7. The concrete surfaces shall be thoroughly dried and cured before application of the coating.
- D. Non-Ferrous Metal Surfaces: Prepare all non-ferrous metal surfaces for painting by light whip-blasting or by lightly sanding with 60-80 mesh sandpaper.
- E. Galvanized (Zinc-Coated) Surfaces: Prepare all galvanized surfaces for painting by lightly sanding with 60-80 mesh sandpaper or by light whip-blasting.

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3.3 MATERIALS PREPARATION

A. General

1. Mix and prepare painting materials in strict accordance with manufacturer's product literature.
2. Do not mix painting materials produced by different manufacturers unless otherwise permitted by manufacturer's instructions.
3. Where thinners are required in the Work, they shall be produced by the paint system manufacturer, unless otherwise permitted by the manufacturer's product literature, submitted to ENGINEER at the time of Shop Drawing approval.

B. Mixing:

1. For those products requiring constant agitation use methods in compliance with manufacturer's product literature, to prevent settling during paint application.
2. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surface into the material. Remove the film and, if necessary, strain the material before using.
3. Strain products requiring such mixing procedures. After adjusting mixer speed to break up lumps and after components are thoroughly blended, strain through 35 to 50 mesh screen before application.

3.4 APPLICATION

A. General

1. Apply paint systems by brush, roller, or airless spray in accordance with manufacturer's recommendations and in compliance with Paint Application Specifications No. 1 in SSPC Vol. 2, where applicable. Use brushes best suited for the type of material being applied. Use rollers of carpet, velvet back, or high pile sheep's wool as recommended by manufacturer for material and texture required. Use air spray and airless spray equipment recommended by manufacturer for specific painting systems specified. Submit a list of application methods proposed, listing paint systems and location.
2. Paint dry film thicknesses required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried.

B. Minimum/Maximum Paint Film Thickness:

1. Apply each material at not less than, nor more than, manufacturer's recommended spreading rate, and provide total dry film thickness as specified.
2. Apply additional coats of paint if required to obtain specified total dry film thickness.
3. Maximum dry film thickness shall not exceed 100 percent of minimum dry film thickness, except where more stringent limitations are recommended by the paint manufacturer for a specific product.

C. Scheduling Surface Preparation and Painting:

1. Apply the first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before

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PAINTING

subsequent surface deterioration in consideration of the atmospheric conditions existing at the time of surface preparation and painting. Surfaces that have started to rust before first-coat application is complete shall be brought back to required standard by abrasive blasting.

2. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- D. Prime Coats: Recoat primed and sealed walls and ceilings where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects caused by insufficient sealing.
- E. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage.
- F. Brush Application
1. Brush-out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable. Neatly draw all glass and color break lines.
 2. Brush apply all primer or first coats, unless otherwise permitted to use mechanical applicators.
- G. Mechanical Applicators
1. Use mechanical methods for paint application when permitted by governing ordinances, manufacturer, and approved by ENGINEER.
 2. Limit roller applications, if approved by ENGINEER, to interior wall finishes for second and third coats. Apply each roller coat to provide the equivalent hiding as brush-applied coats.
 3. Wherever spray application is used, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double back with spray equipment for the purpose of building up film thickness of two coats in one pass.

3.5 PROTECTION

- A. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove all temporary protective wrappings provided for protection of this Work and the work of other prime CONTRACTORS after completion of painting operations.

3.6 ADJUSTMENT AND CLEAN-UP

- A. Correct all damages to the work of other trades by cleaning, repairing or replacing, and repainting, as acceptable to ENGINEER.
- B. During the progress of the Work, remove from the Site all discarded paint materials, rubbish, cans and rags at the end of each work day.
- C. Upon completion of painting, clean all paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- D. At the completion of Work of other trades, touch-up and restore all damaged or defaced painted surfaces as determined by ENGINEER.

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PAINTING

END OF SECTION 09900

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MECHANICAL EQUIPMENT - GENERAL

PART 1 - GENERAL

1.1 SCOPE

A. Description of Work

1. Furnish and install all mechanical equipment specified in this Division, as well as all other mechanical equipment shown and specified on the drawings and not specifically excluded from this Contract.
2. Included is all supervision, labor, materials, tools, equipment, and services as required for installation and test operation of equipment.
3. Installation shall include placing, shimming, anchoring, grouting, lubricating, assembling, adjusting, cleaning and painting of all mechanical equipment.
4. The Structural-Mechanical CONTRACTOR shall coordinate his work with the other CONTRACTORS to provide a complete and workable installation.
5. The CONTRACTOR'S attention is called to the fact that the presence of a manufacturer's name in a Section of these Specifications does not relieve the CONTRACTOR from meeting the detailed mechanical and performance requirements set forth in that Specification.

1.2 EQUIPMENT MANUFACTURER'S SERVICE REPRESENTATIVE

A. Installation Assistance

1. Any equipment which will require Equipment Manufacturer's Service Representative for the purpose of assisting and directing the installation, adjustment and initial operation, is noted in the specific Specification Section. The cost of this service shall be included in the Contract Price.
2. The following items must be completed as a part of the installation assistance:
 - a. Installation
 - b. Calibration, adjustment, etc.
 - c. Energize equipment
 - d. Mechanical shakedown
 - e. Electrical control shakedown, complete testing of all control functions, alarms and verify operation of system.
 - f. Deficiency correction
 - g. Compliance with applicable performance specification
 - h. Provide certification from the Manufacturer's Service Representative that the installation and operation is in complete compliance with the manufacturer's recommendations and ENGINEER'S requirements. The required Equipment Certification Form is attached herewith as PART 4 of this Section.
3. Operator instruction/training shall not be undertaken during installation, but only as stated under Paragraph "C" below.

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MECHANICAL EQUIPMENT - GENERAL

4. Upon completion of project, the CONTRACTOR will forward to the OWNER all required equipment certifications.
 - a. Copy of Equipment Certification Form is attached at the end of this Section.
 - B. Process Startup and/or Process Stabilization and Balancing Assistance
 1. Equipment that requires process startup and/or process stabilization and balancing assistance is noted in the Specification Section. The cost of this service shall be included in the Contract Price.
 2. For such equipment, the Manufacturer's Service Representative is required to be on hand during either process startup or process stabilization and balancing for the period of time determined by the ENGINEER. The Representative shall make all necessary field adjustments.
 - C. Operating Instructions and/or Operator Training
 1. Equipment that requires operating instructions and/or training for the Plant Operators is noted in the specific specification section. The cost of this service shall be included in the Contract Price.
 2. The CONTRACTOR, if instructions and/or training are required and after the equipment has been accepted, shall arrange through the Equipment Manufacturer's Service Representative, or other qualified individual, to adequately instruct designated employees of the OWNER in the operation and care of the equipment. During this training period, instructions shall be provided on proper safety measures to be taken during operation of equipment. The training period is to be integrated by the OWNER with overall Plant training.
 3. A letter of certification shall be submitted to the ENGINEER from the Manufacturer's Service Representative upon completion of the plant visit indicating that the Plant personnel have been instructed in the proper use of the equipment.
- 1.3 MANUALS, SHOP DRAWINGS, SERVICE AND MAINTENANCE
- A. Manuals
 1. Manuals shall be furnished in accordance with the provisions of Section 013300, SUBMITTALS AND SUBSTITUTIONS.
 - B. Shop Drawings
 1. Shop drawings shall be furnished in accordance with the provisions of Section 013300, SUBMITTALS AND SUBSTITUTIONS.
 - C. Service and Maintenance
 1. Evidence shall be furnished, if requested by the ENGINEER, that there is an efficient service organization which regularly carries a stock of repair parts for the proposed equipment.
- 1.4 TOOLS AND ACCESSORIES
- A. The CONTRACTOR shall furnish, with each type, make, or size of equipment, any special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Such tools and appliances shall be high-grade, properly labeled, and delivered to the OWNER prior to initial operation of the equipment.

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MECHANICAL EQUIPMENT - GENERAL

1.5 IDENTIFICATION NAMEPLATES

- A. Each piece of equipment shall be provided with a substantial brass, stainless steel or plastic nameplate, securely fastened in a conspicuous place and clearly inscribed with the Equipment Manufacturer's name, year of manufacture, serial number, and principal rating data. These nameplates shall not be painted.

1.6 GUARANTEE AND WARRANTY

- A. See "GENERAL CONDITIONS" and "SPECIAL PROVISIONS" for guarantee and warranty information.

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

- A. The CONTRACTOR is liable for any changes in design necessitated by any equipment manufacturer's requirements which differ from those shown or specified in the Contract Documents.

2.2 QUALITY OF EQUIPMENT

- A. Equipment and appurtenances shall be designed in conformity with ANSI, ASME, IEEE, NEMA, AGMA, and other generally accepted applicable standards. They shall be of high quality construction and designed to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions or operations. All moving parts shall be adequately protected from wear by the use of bearings, bushings or other approved means. Provisions shall be made for adequate lubrication with readily accessible devices.
- B. Machinery parts shall conform to the dimensions shown on the working drawings within allowable tolerances. The corresponding parts of identical machines shall be made interchangeable. Ample clearance shall be provided for repairs, inspection and adjustment. Protruding members such as joints, corners and gear covers shall be finished in appearance. All exposed welds shall be ground smooth and the corners of structural shapes shall be rounded or chamfered.
- C. All machinery and equipment shall be safeguarded in accordance with the safety codes of the ANSI, OSHA and local industrial codes such as providing metal guards over all belt drives, couplings and moving equipment to protect personnel from injury.

2.3 ELECTRIC MOTORS

- A. All electric motors furnished to drive mechanical equipment shall conform to the design, construction and performance requirements of Division 16 ELECTRICAL and shall suit the characteristics of the available electric service.
- B. Motors shall be factory installed where applicable by the equipment manufacturer.

2.4 ANCHOR BOLTS

- A. The Equipment Manufacturer shall provide anchor bolts of the proper size for all equipment specified under this Division of the Specifications. These anchor bolts, nuts and washers shall be hot dip galvanized steel unless specified otherwise in the equipment Specification.

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MECHANICAL EQUIPMENT - GENERAL

2.5 PROTECTIVE COATINGS

- A. All machined surfaces and shafting shall be cleaned and protected from corrosion by the proper type and amount of coating necessary to assure protection during shipment and prior to installation.
- B. Oil lubricated gears, bearings, etc. are to be shipped with an oil soluble protective coating as recommended by the Equipment Manufacturer.
- C. Motors, reducers and electric controls shall have the standard factory finish prior to delivery.

2.6 STANDARDIZATION OF GREASE FITTINGS

- A. The grease fittings on all mechanical equipment shall be such that they can be serviced with a single type of grease gun. Fittings shall be of the "Alemite" button head type, Zurn, or equal, unless otherwise stated in the detailed equipment specifications.

PART 3 - EXECUTION

3.1 QUALITY OF WORKMANSHIP

- A. All equipment shall be installed true, level and in the location shown on the drawings. Precision gauges and levels shall be used in setting all equipment.

3.2 ANCHORS AND SUPPORTS

- A. Working drawings for installation shall be furnished by the Equipment Manufacturer and suitable templates shall be used by the CONTRACTOR when required.
- B. The CONTRACTOR shall install and protect all necessary guides, bearing plates, anchor and attachment bolts, and all other appurtenances required for the installation.
- C. The anchor bolts shall be set with the proper projection as required by the equipment manufacturers, such that no field cutting of the galvanized anchor bolts is required.

3.3 INSTALLATION OF EQUIPMENT

- A. The CONTRACTOR shall have on-site, sufficient proper construction equipment and machinery of ample capacity to facilitate the work and to handle all emergencies normally encountered in work of this character. To minimize field erection problems, mechanical units shall be factory assembled when practical.
- B. It will be the CONTRACTOR'S responsibility to determine weights of equipment to be handled, and to provide adequate handling equipment and experienced riggers. Any weights shown on the drawings are approximate and are to be used at the CONTRACTOR'S discretion.
- C. Equipment shall be erected in a neat and workmanlike manner on the foundations and supports at the locations and elevations shown on the contract drawings, unless instructed otherwise by the ENGINEER during installation.
- D. The equipment shall be brought to proper level by wedges and shims. After the machine has been leveled and aligned, the nuts on the anchor bolts shall be tightened to bind the machine firmly into place against the wedges or shims.

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MECHANICAL EQUIPMENT - GENERAL

- E. All equipment shall be installed in such a manner as to provide access for routine maintenance including lubrication.
- F. For equipment such as pumping units, which require field alignment and connections, the CONTRACTOR shall provide the services of the Equipment Manufacturer's qualified mechanic, millwright, machinist, or authorized representative, to align the pump and motor prior to making piping connections or anchoring the pump base.
- G. Equipment of a portable nature which requires no installation shall be delivered to a location designated by the ENGINEER.

3.4 ELECTRICAL CONNECTIONS AND CONTROLS

- A. Wiring and conduits for electrical power, control and instrumentation will be under Division 16, ELECTRICAL.

3.5 LUBRICATION

- A. The CONTRACTOR shall thoroughly lubricate all equipment in accordance with the Equipment Manufacturer's instructions. Lubricating oils and greases shall be of type and viscosity as recommended by the Equipment Manufacturer.
- B. All lubricants shall be furnished by the CONTRACTOR.
- C. All systems requiring oil lubrication for gears, bearings, etc., are to be flushed with oil as recommended by the Equipment Manufacturer. This includes all gears, bearings, etc., regardless of whether they have been shipped with or without oil soluble protective coatings.
- D. Following flushing, oil lubricated systems shall be filled with "run-in" oil as recommended by the Equipment Manufacturer. The equipment shall be "run-in" at the no-load condition for a minimum period of two (2) hours. Following "run-in" and inspection, the equipment is to be drained and flushed again with flushing oil as recommended by the Equipment Manufacturer.
- E. The schedule for the above procedures is to be submitted for review by the ENGINEER at least two (2) weeks prior to the selected procedure starting date. At this time, inspection details can be worked out.

3.6 TEST OPERATION

- A. When all relevant items of equipment, including controls and instrumentation, have been completely erected, the CONTRACTOR shall notify the ENGINEER, who will designate a time to make such tests as are required, and operate the equipment to his satisfaction. All testing shall be done in the presence of the ENGINEER. "Completely erected" shall mean that the installation is erected, all necessary adjustments have been made, all required utility connections have been made, required lubricants and hydraulic fluid have been added, and the unit has been cleaned up. All testing operations shall be complete before operator training is started.
- B. The CONTRACTOR shall furnish labor, lubricants, and all other materials, equipment and instruments necessary for all acceptance tests.

3.7 RESPONSIBILITY DURING TESTS

- A. The CONTRACTOR shall be fully responsible for the proper operation of equipment during tests and instruction periods and shall neither have nor make any claim for

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MECHANICAL EQUIPMENT - GENERAL

damage which may occur to equipment prior to the time when the OWNER normally takes over the operation thereof.

- B. Reference Specification Section 01650, Starting of Systems for specifics regarding required testing and procedures.

3.8 ACCEPTANCE OF EQUIPMENT BY THE OWNER

- A. After the equipment has satisfied all of the above conditions, the CONTRACTOR shall notify the ENGINEER and shall, at such time as agreed upon, demonstrate to his satisfaction that the equipment is ready for operation. The equipment shall then be designated as "accepted" and the OWNER will be responsible for all further maintenance and operation of same.

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MECHANICAL EQUIPMENT - GENERAL

PART 4 - EQUIPMENT CERTIFICATION

EQUIPMENT CERTIFICATION

OWNER: _____ Date _____

Project: _____

Contract No.: _____ For the Work performed by

(CONTRACTOR)

Specification Section No: _____

Title: _____

On _____ day of _____, 20____

(Name(s) of Service Representative(s)) _____

representing _____
(Equipment Manufacturer)

visited the _____ (Name of Project)

for the purpose of certifying the installation and operation of: _____

<u>Equipment Name</u>	<u>Tag No.</u>
_____	_____

I/we certify that the installation and operation of the above equipment, except as noted below, is in complete compliance with the Manufacturer's recommendations and ENGINEER'S requirements.

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MECHANICAL EQUIPMENT - GENERAL

The installation and operation of the following equipment does not comply with the Manufacturer's recommendations and ENGINEER'S requirements

Equipment Tag No.

Reason for Non Certification

Signature _____

Title _____

Company _____

END OF SECTION 11000

SECTION 15052

EXPOSED PIPING INSTALLATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope

1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to install and test all exposed piping, fittings, and specials. The Work includes, but is not limited to, the following:
 - a. All types and sizes of exposed piping, except those specified under other Sections or other contracts.
 - b. Piping embedded in concrete within a structure or foundation will be considered as exposed and included herein.
 - c. Supports, restraints, and other anchors.
 - d. Work on or affecting existing piping.
 - e. Testing.
 - f. Cleaning and disinfecting.
 - g. Installation of all jointing and gasketing materials, specials, flexible couplings, mechanical couplings, harnessed and flanged adapters, sleeves, tie rods, and all other Work required to complete the exposed piping installation.
 - h. Incorporation of valves, meters and special items shown or specified into the piping systems as required and as specified in the appropriate Division 15 Sections.
 - i. Unless otherwise specifically shown, specified, or included under other Sections, all exposed piping Work required, beginning at the inside face of structures or structure foundation and extending into the structure terminating at the pump discharge flange connection.

B. Coordination

1. Review installation procedures under other Sections and coordinate with the Work that is related to this Section.
2. Section 15052 specifies the installation of all exposed piping materials specified in piping sheets following this section. Coordinate with the respective sheet.

C. Related Sections

1. Section 09900, Painting.

1.2 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies

1. Refer to the General and Supplementary Conditions regarding requirements for this Project.

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EXPOSED PIPING INSTALLATION

- B. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
1. ANSI B16.3, Malleable-Iron Threaded Fittings, Classes 150 and 300.
 2. ANSI B16.4, Cast Iron Threaded Fittings, Classes 125 and 250.
 3. ANSI B16.5, Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys.
 4. ANSI B31.8, Gas Transmission and Distribution Piping Systems.
 5. AWWA C111, Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
 6. AWWA C600, Installation of Ductile Iron Water Mains and Their Appurtenances.
 7. AWWA C606, Grooved and Shouldered Type Joints.
 8. AWWA C651, Disinfecting Water Mains.
 9. AWWA M23, PVC Piping.

1.3 SUBMITTALS

- A. Shop Drawings: Submit for approval the following:
1. Detailed drawings in plan and profile, and laying schedules.
 2. Details of piping, valves, supports, accessories, specials, joints, harnessing, and connections to existing pipes and structures.
- B. Tests: Submit description of proposed testing methods, procedures and apparatus. Submit copies of test report for each test.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the site to insure uninterrupted progress of the Work.
- B. Handle all pipe, fittings and accessories carefully with approved handling devices. Do not drop or roll pipe off trucks. Do not otherwise drop, roll or skid piping.
- C. Store pipes and fittings on heavy wood blocking or platforms so they are not in contact with the ground.
- D. Unload pipe, fittings and specials opposite to or as close to the place where they are to be installed as is practical to avoid unnecessary handling. Keep pipe interiors completely free from dirt and foreign matter.
- E. Inspect delivered pipe for cracked, gouged, chipped, dented or other damaged material and immediately remove from site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Required pipe materials are listed in the Piping Schedule. Refer to applicable specification sheets for pipe specifications.
- B. General
1. Marking Piping:

SECTION 15052

EXPOSED PIPING INSTALLATION

- a. Clearly mark each piece of pipe or fitting with a designation conforming to that shown on the Shop Drawings.
- b. Cast or paint material, type and pressure designation on each piece of pipe or fitting 4 inches in diameter and larger.
- c. Pipe and fittings smaller than 4 inches in diameter shall be clearly marked by manufacturer as to material, type and rating.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General

1. Install piping as shown, specified and as recommended by the manufacturer.
2. If there is a conflict between manufacturer's recommendations and the Drawings or Specifications request instructions from ENGINEER before proceeding.

B. Piping Installation

1. Install straight runs true to line and elevation.
2. Install vertical pipe truly plumb in all directions.
3. Install piping parallel or perpendicular to building walls. Piping at angles and 45 degree runs across corners will not be accepted unless specifically shown or approved.
4. Install small diameter piping generally as shown when specific locations and elevations are not indicated.
5. Provide temporary caps or plugs over all pipe openings at the end of each days work, and when otherwise required or directed by ENGINEER.
6. Cutting: Cut pipe from measurements taken at site, not from Drawings.
7. Install dielectric unions wherever dissimilar metals are connected except for bronze or brass valves in ferrous piping.
8. Provide screwed or flanged unions at each piece of equipment, where shown, and where necessary to install or dismantle piping.

C. Joints

1. General

- a. Make joints in accordance with the pipe manufacturer's recommendations and the requirements below.
- b. Cut piping accurately and squarely and install without forcing or springing.
- c. Ream out all pipes and tubing to full inside diameter after cutting. Remove all sharp edges on end cuts.

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EXPOSED PIPING INSTALLATION

- d. Remove all cuttings and foreign matter from the inside of pipe and tubing before installation. Thoroughly clean all pipe, fittings, valves, specials, and accessories before installing.
- e. Field repair pipe coating and lining as necessary prior to installation.

2. Flanged Joints

- a. Assemble all flanged joints using 1/8-inch ring-type gaskets as specified on the pipe specification sheets following Part 4 of this specification. Gaskets shall be suitable for the service intended in accordance with the manufacturer's ratings and instructions. Gaskets shall be properly centered.
- b. Bolts shall be tightened in a sequence which will insure equal distribution of bolt loads.
- c. The length of bolts shall be uniform, and they shall not project beyond the nut more than 1/4-inch or fall short of the nut when fully taken up. The ends of bolts shall be machine cut so as to be neatly rounded. No washers shall be used.
- d. Bolt threads and gasket faces for flanged joints shall be lubricated prior to assembly.
- e. Alternately tighten bolts 180 degrees apart to compress the gasket evenly.

3.2 HANGERS AND SUPPORTS

A. Pipe Hangers

- 1. Pipe supports shall be installed in an approved manner.
- 2. Pipe lines close to the floor may be supported from the floor by structural steel fabricated supports.
- 3. All vertical piping shall be properly supported with suitable steel brackets to prevent swinging or sagging.
- 4. Heavy valves or fittings shall be supported by hangers, poured concrete, blocks, or special provisions shall be taken to avoid undue line deflection.
- 5. The maximum spacing of hangers for ferrous metal piping shall be in accordance with the following table, except where otherwise indicated on the Drawings. Hanger spacing for plastic piping shall be one half of that allowed for metal piping.

a. Pipe hanger table

Pipes	Hanger Rods	Hanger Spacing Center to Center
1/2 in. and 3/4 in.	3/8 in.	Not more than 6 ft – 6 in.
1 in. and 1-1/4 in.	3/8 in.	Not more than 8 ft – 0 in.
1-1/2 in. and 2 in.	1/2 in.	Not more than 10 ft. – 0 in.

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EXPOSED PIPING INSTALLATION

3 in. and 4 in.	½ in.	Not more than 14 ft. – 0 in.
6 in. and 8 in.	5/8 in.	Not more than 16 ft. – 0 in.
10 in. and larger	¾ in.	Not more than 20 ft. – 0 in.

- b. All hangers of different services running parallel with and near each other shall be installed parallel to the lines of the building.

3.3 PAINTING

- A. Field painting is under Section 09900.

3.4 TESTING OF PIPING

A. General

1. Test all piping except as may be exempted in the Schedule.
2. Notify ENGINEER and local authorities having jurisdiction at least 48 hours in advance of testing if their presence is required.
3. Conduct all tests in the presence of the ENGINEER.
4. Remove or protect any pipeline-mounted devices which may be damaged by the test pressure.
5. Provide all apparatus and services required for testing, including but not limited to, the following:
 - a. Test pumps, bypass pumps, calibrated gauges, valves and fittings.
6. Provide air if an air test is required and power if pumping is required.
7. CONTRACTOR to provide all water for pipeline testing.
8. Repair observed leaks and any pipeline failing to meet acceptance criteria. Retest after repair.

B. Test Schedule

1. Refer to the Piping Schedule for the type of test required and the required hydrostatic test pressure.
2. Unless otherwise specified, the required hydrostatic test pressures are at the lowest elevation of the pipeline.
3. For piping not listed in the Schedule:
 - a. Hydrostatically test pipe that will be operating at a pressure greater than 5 psig.
 - b. Use low-pressure air testing for all other piping.
4. Hydrostatic Test Pressure:
 - a. Use test pressures listed in the Schedule.

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EXPOSED PIPING INSTALLATION

- b. If a test pressure is not listed in the Schedule, or if a hydrostatic test is required for piping not listed in the Schedule, the test pressure will be determined by the ENGINEER based on the maximum anticipated sustained operating pressure and the methods described in the AWWA Manual or Standard which applies to the piping system.

C. Hydrostatic Testing

1. Preparation for Testing:

- a. For plastic pipe follow procedures described in Section 7 of AWWA Standard C605.
- b. For all other piping follow procedures described in AWWA Manual M9 except that the minimum wetting period required immediately prior to testing for cement-lined pipe shall be 24 hours rather than the 48 hours prescribed for concrete pipe. A wetting period is not required for metal pipe that is not cement-lined or for plastic pipe.
- c. Ensure that adequate thrust protection is in place and that all joints are properly installed.

2. Test Procedure:

- a. Fill pipeline slowly to minimize air entrapment and surge pressures. Fill rate should not exceed one foot per second in the pipe being tested.
- b. Examine exposed joints and valves, and correct visible leakage.
- c. After the wetting period prescribed above, add fluid to pressurize line to the required test pressure. Maintain test pressure for a stabilization period of 10 minutes before beginning test.
- d. After the stabilization period, maintain test pressure for a two-hour period. Add fluid to restore test pressure if pressure drops 5 psi below test pressure at any time during the test period.
- e. Pump from a test container to maintain test pressure. Measure the volume of fluid pumped from the container and record on the test report. Record pressure at the test pump at 15 minute intervals for the duration of the test.

3. Allowable Leakage Rates: Leakage is defined as the quantity of fluid that must be supplied to the pipeline or any section thereof to maintain pressure within 5 psi of the test pressure during a two-hour period. The two-hour test period shall not begin until after the pipe has been filled, exposed to the required wetting period, air has been expelled and pressure has been stabilized. Allowable leakage rates for piping system are listed below:

- a. No Leakage: All piping.

D. Low Pressure Air Testing

1. Test in accordance with requirements of the regulatory agency.
2. If there are no regulatory requirements use test procedures described in ASTM Standards:
 - a. ASTM F1417 – For thermoplastic pipe.

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EXPOSED PIPING INSTALLATION

3.5 CLEANING AND DISINFECTION

A. Cleaning

1. Thoroughly clean all piping and flush in a manner approved by ENGINEER, prior to placing in service.

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EXPOSED PIPING INSTALLATION

3.6 PIPING SCHEDULE

EXPOSED PIPING SCHEDULE

Service	Size	Material	Interior Lining	Exterior Coating	Pressure Class	Joint	Pressure Test (psig)	Spec.
PW	6" to 30"	DI	CL	Paint	See D-3B	Flg	3.4.C (100 psi)	D-3b

The following abbreviations are used in the piping schedule:

A. Service Abbreviations

Potable Water PW

B. Material Abbreviations

Ductile Iron DI

C. Lining & Coating Abbreviations

Cement Lined CL

D. Joint Abbreviations

Flanged Flg

PART 4 - APPENDIX

4.1 PIPING SPECIFICATION SHEETS

A. The following specification sheets detail the products and materials of this specification section and denote accepted equivalent manufacturers. The pipe sheets included are as follows:

D-3b Ductile iron flanged

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EXPOSED PIPING INSTALLATION

ENGINEERING STANDARD

ISSUED	15/06/00	PIPING SPECIFICATION SHEET	D-3b
REVISED	2/1/2012		

- Service: Process Facilities - Water, sewage or other liquids - 200 psig at 150°F maximum. Above Grade Piping Installations.
- Pipe: Ductile Iron - Grade 60-42-10 in accordance with ANSI/AWWA C151/A21.51, latest revision
4" - 12" = AWWA C150/A21.50 and C151/A21.51 pressure class 350
14" - 24" = AWWA C150/A21.50 and C151/A21.51 Pressure class 250
30" - 64" = AWWA C150/A21.50 and C151/A21.51 Pressure class 200
- Pipe Joints: Ductile Iron Cast-On-Flange in accordance with ANSI/AWWA C110/A21.10 and/or threaded-on-flange in accordance with ANSI/AWWA C115/A21.15. Bolt holes and bolt circles shall match those of ANSI B16.1 Class 125 flanges and ANSI B16.5 Class 150 flanges.
- Gaskets: 1/8" thick red rubber ring gaskets or American Cast Iron Pipe Company, Toruseal* gaskets designed for AWWA C110 or C115 flanges.
- Pipe Line Couplings: Plain-end to plain-end pipe couplings shall utilize a steel cylindrical middle ring, two resilient gaskets, two grip rings and two follower rings. The bolts and nuts shall be type 316 stainless steel (CONTRACTOR shall replace the bolts if required in order to meet this specification). The couplings shall be epoxy coated on all surfaces. The couplings shall be Dresser* style 711 , or as noted on plans, or approved equal.
- 3" to 12" plain-end pipe to flanged valve connections and plain-end to flange pipe connections shall utilize EBBA Iron Series 2100 Megaflange restrained flange adapters, or approved equal. These units shall be coated with fusion bonded epoxy.
- Other field made flanged connections shall utilize cast/ductile iron set screw type flange adapters will not be approved.

SECTION 15052

EXPOSED PIPING INSTALLATION

- Fittings:** Fittings shall be full-body, 250 PSI pressure rated, Ductile Iron flanged in accordance with ANSI/AWWA C110/A21.1 or ANSI/AWWA C153/A21.53. Flanges shall have facing and drilling to match AWWA C115 and ANSI B16.1 Class 125 flanges. The fittings shall be Ductile Iron Grade 70-50-05, with a minimum tensile strength of 70,000 PSI and minimum yield strength of 50,000 PSI per AWWA C110 or C153.
- Wall Pipe:** Wall pipes shall be integrally cast with wall collars or shall be shop fabricated with full length penetration weld-on collars. All wall pipes shall be designed for use in thrust and load bearing conditions.
- Bolting:** Fasteners shall be hex head machine bolts with hex nuts. Studs with one hex nut each are required for tapped flanges. Bolts, studs and nuts are low carbon steel per ASTM A307. Threads shall be ANSI B1.1 Coarse Thread series, Class 2A external and Class 2B internal. Recommended studs are same length as corresponding bolt length with "tap end" threaded approximately the same length as flange thickness.
- Reference Specification Section 15052, Exposed Piping Installation for Bolt Tightening Sequence and additional information.
- Bolt Torque**
- Pipe Size: 4"-8" = 100 ft. lbs.
Pipe Size: 10"-12" = 200 ft. lbs.
Pipe Size: 14"-16" = 300 ft. lbs.
Pipe Size: 18"-20" = 350 ft. lbs.
Pipe Size: 30"-64" = 250 ft. lbs.
- Coating:** The exterior surfaces of all pipe and fittings shall receive a pipe manufacturer applied coating of high solids epoxy primer. The finish coating shall be applied by the CONTRACTOR in accordance with specification Section 09900, Painting.
- Lining:** The interior surfaces of all pipe and fittings shall receive a shop applied cement-mortar lining in accordance with ANSI/AWWA C104/A21.4.
- Marking:** Each piece of pipe and all fittings shall be marked with the weight, class or nominal thickness, mark identifying year of manufacture, the letter "D.I." and manufacturer's name.
- Laying Conditions:** All above grade piping shall have hangers and/or supports spaced not less than one per pipe joint or as indicated on drawings.
- Accessories:** All piping accessories required to complete the project, including tapping saddles, sleeves, bosses, etc., shall be the product of the pipe manufacturer or meet the approval of the pipe manufacturer for installation as part of this project.

SECTION 15052

EXPOSED PIPING INSTALLATION

- * The use of manufacture and/or brand name products within this specification is done only to provide the reviewer with a known product meeting this specification and not to limit the application of other products meeting this specification.

END OF SECTION 15052

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

1. PART - GENERAL

1.1. Work under this section includes, but is not limited to furnishing and installing a factory built pump station as indicated on the project drawings, herein specified, as necessary for proper and complete performance.

1.2. REFERENCES

Publications listed below form part of this specification to extent referenced in the text by basic designation only. Consult latest edition of publication unless otherwise noted.

A. American National Std. Institute (ANSI)/American Water Works Assoc. (AWWA)

- | | |
|--------------------------|---|
| 1. ANSI B16.1 | Cast iron pipe flanges and flanged fittings. |
| 2. ANSI/AWWA C115/A21.15 | Cast/ductile iron pipe with threaded flanges. |
| 3. ANSI 253.1 | Safety Color-Code for Marking Physical Hazards. |
| 4. ANSI B40.1 | Gages, Pressure and Vacuum. |
| 5. AWWA C508 | Single Swing Check Valves. |

B. American Society for Testing and Materials (ASTM)

- | | |
|------------------|-------------------------------------|
| 1. ASTM A48 | Gray Iron Castings. |
| 2. ASTM A126 | Valves, Flanges, and Pipe Fittings. |
| 3. ASTM A307 | Carbon Steel Bolts and Studs. |
| 4. ASTM A36 | Structural Steel. |
| 5. ASTM B584-875 | Die Cast Bronze |
| 6. ASTM B505-932 | Bronze Wear Ring |
| 7. ASTM B148-954 | Bronze Shaft Sleeve |

C. Institute of Electrical and Electronics Engineers (IEEE)

- | | |
|-----------------|---|
| 1. IEEE Std 100 | Standard Dictionary of Electrical Terms. |
| 2. IEEE Std 112 | Test Procedure for Polyphase Induction Motors. |
| 3. IEEE Std 242 | Protection of Industrial and Control Power Systems. |

D. National Electrical Code (NEC)/National Electrical Manufacturers Assoc. (NEMA)

- | | |
|-----------------|---------------------------------------|
| 1. NEC | National Electrical Code. |
| 2. NEC 701 | National Electrical Code article 701. |
| 3. NEMA Std MG1 | Motors and Generators. |

E. Miscellaneous References

1. Hydraulic Institute Std for Centrifugal, Rotary and Reciprocating Pumps.
2. ISO 9001 International Organization for Standardization.
3. NMTBA and JIC Std National Machine Builders Association and Joint Industrial Council Standards.

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

1.3. SYSTEM DESCRIPTION

- A. Contractor shall furnish and install one factory built above ground, automatic, pressure booster pump station. The station shall be complete with all equipment specified herein, factory assembled on a structural steel base.
- B. In addition to the steel base, principle items of equipment shall include three pumps, motors, internal piping, valves, motor control panel and internal wiring.
- C. Factory built pump station design, including materials of construction, pump features, valves and piping, and motor controls shall be in accordance with requirements listed under PART 2 - PRODUCTS of this section.

1.4. PERFORMANCE CRITERIA

- 1. The horizontal close-coupled end suction centrifugal pumps shall have a rated capacity of 1100 GPM when boosting pressure 27 PSI. Minimum suction pressure is 40 PSIG. Motor and pump speed shall not exceed 1800 RPM.

C. UTILITY POWER REQUIREMENTS

Site power furnished to pump station shall be 3 phase, 60 hertz, 460 volts, maintained within industry standards. Voltage tolerance shall be plus or minus 10 percent. Phase-to-phase unbalance shall not exceed 1% average voltage as set forth in NEMA Standard MG-1. Control voltage shall not exceed 132 volts.

1.5. SUBMITTAL

A. Product Data

- 1. Prior to fabrication, pump station manufacturer shall submit 8 copies of submittal data for review and approval.
- 2. Submittal shall include shop drawings, electrical ladder logic drawings, and support data as follows: Catalog cuts sheets reflecting characteristics for major items of equipment, materials of construction, major dimensions, motor data, pump characteristic curves showing the design duty point capacity (GPM), head (FT), minimum suction pressure (PSI) and hydraulic brake horsepower (BHP). Electrical components used in the motor branch and logic control shall be fully described.

- B. Shop Drawings shall provide layout of mechanical equipment and anchor bolt locations for station. Pipe penetrations and station access clearances shall be dimensioned relative to the station centerline. The electrical ladder logic drawings shall illustrate motor branch and pressure control circuits to extent necessary to validate function and integration of circuits to form a complete working system.

C. Operations and Maintenance Manuals

- 1. Installation shall be in accordance with written instructions provided by the pump station manufacturer. Comprehensive instructions supplied at time of shipment shall

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

enable personnel to properly operate and maintain all equipment supplied. Content and instructions shall assume operating personnel are familiar with pumps, motors, piping and valves, but lack experience on exact equipment supplied.

2. Documentation shall be specific to the pump station supplied and collated in functional sections. Each section shall combine to form a complete system manual covering all aspects of equipment supplied by the station manufacturer. Support data for any equipment supplied by others, even if mounted or included in overall station design, shall be provided by those supplying the equipment. Instructions shall include the following as a minimum:
 - a. Functional descriptions of each major component complete with operating instructions.
 - b. Instructions for operating pumps and pump controls in all modes of operation.
 - c. Calibration and adjustment of equipment for initial start-up, replacement of pressure control components, or as required for routine maintenance.
 - b. Support data for commercially available components not produced by the station manufacturer, but supplied in accordance with the specifications, shall be supported by literature from the prime manufacturer and incorporated as appendices.
 - c. Electrical schematic diagram of the pump station circuits shall be in accordance with NFPA 79. Schematics shall illustrate, to the extent of authorized repair, pump motor branch, control and alarm system circuits including interconnections. Wire numbers and legend symbols shall be shown. Schematic diagrams for individual components, not normally repairable by the station operator, need not be included. Details for such parts shall not be substituted for an overall system schematic. Partial schematics, block diagrams, and simplified schematics shall not be provided in lieu of an overall system diagram.
 - d. Mechanical layout drawing of the pressure booster pump station and components, prepared in accordance with good commercial practice, shall provide installation dimensions and location of all pumps, motors, valves and piping.
3. Operation and maintenance instructions, which rely on vendor cut-sheets, and literature, which include general configurations, or require operating personnel to selectively read portions of the manual, shall not be acceptable. Operation and maintenance instructions must be specific to equipment supplied in accordance with these specifications.

1.6. QUALITY ASSURANCE

A. Manufacturers Qualifications

1. The pump station system integrator must be ISO 9001:2000 revision certified, with scope of registration including design control and service after sales activities.
2. Upon request from the engineer, the pressure booster pump station manufacturer shall prove financial stability and ability to produce the station within the specified delivery

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

schedules. Evidence of facilities, equipment and expertise shall demonstrate the manufacturer's commitment to long term customer service and product support.

B. Performance Certifications

1. Pump Performance

- a. Each pump shall undergo a certified hydrostatic test at 150% of the pressure developed at shut-off head.
- b. Certified performance tests shall be performed on each pump utilizing its specified drive. If variable frequency drives are specified, one drive of each rating shall be used to drive the appropriate pump in the system.
- c. All tests shall be performed in accordance with the Hydraulic Institute Test Standards for Centrifugal Pumps - 1.6 (1988).
- d. Six evenly spaced test points shall be taken and shall include conditions at shut-off (zero flow) and the operating points specified herein. Preliminary test data must be submitted to the owner seven days prior to the actual test date.
 - 1) Liquid to be used for all tests shall be water.

C. Factory System Test

1. All internal components including the pumps, motors, valves, piping and controls will be tested as a complete working system at the manufacturer's facility. Tests shall be conducted in accordance with Hydraulic Institute Standards at the specified head, capacity, and rated horsepower. Factory operational test shall simulate actual performance anticipated for the complete station.
2. Upon request from the engineer, the engineer, and/or representatives of his choice, at the manufacturer's facility may witness the operational test.

D. Manufacturer's Start-up Services

1. The manufacturer's technical representative shall inspect the completed installation, correct or supervise the correction of any defect or malfunction, and instruct operating personnel in the proper operation and maintenance of the equipment as described in Part 3 of this section.

1.7. MANUFACTURER'S WARRANTY

- A. The pump station manufacturer shall warrant all equipment to be of quality construction, free of defects in material and workmanship. A written warranty shall include specific details described below.
 1. In addition to defects in material and workmanship, fiberglass reinforced polyester station enclosures (where applicable) are warranted for sixty (60) months to be resistant to rust, corrosion, corrosive soils, effects of airborne contamination or

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

physical failures occurring in normal service for the period of the pump station warranty.

2. All other equipment, apparatus, and parts furnished shall be warranted for twelve (12) months, excepting only those items that are normally consumed in service, such as light bulbs, oils, grease, packing, gaskets, O-rings, etc. The pump station manufacturer shall be solely responsible for warranty of the station and all components.
 - B. Components failing to perform as specified by the engineer, or as represented by the manufacturer, or as proven defective in service during the warranty period, shall be replaced, repaired, or satisfactorily modified by the manufacturer.
 - C. It is not intended that the station manufacturer assume liability for consequential damages or contingent liabilities arising from failure of any vendor supplied product or part which fails to properly operate, however caused. Consequential damages resulting from defects in design or delays in delivery are also beyond the manufacturer's scope of liability.
 - D. Equipment supplied by others and incorporated into a pump station or enclosure is not covered by this limited warranty. Any warranty applicable to equipment selected or supplied by others will be limited solely to the warranty, if any, provided by the manufacturer of the equipment.
 - E. This limited warranty shall be valid only when installation is made and use and maintenance is performed in accordance with manufacturer recommendations. A start-up report completed by an authorized manufacturer's representative must be received by manufacturer within thirty (30) days of the initial date the unit is placed into service. The warranty shall become effective on the date of acceptance by the purchaser or the purchaser's authorized agent, or sixty (60) days after installation, or ninety (90) days after shipment from the factory, whichever occurs first.

2. PART - PRODUCT

2.1. UNITARY RESPONSIBILITY

- A. In order to unify responsibility for proper operation of the complete pumping station, it is the intent of these Specifications that all system components be furnished by a single supplier (unitary source). The pumping station must be of standard catalog design, totally warranted by the manufacturer. Under no circumstances will a system consisting of parts compiled and assembled by a manufacturer's representative or distributor be accepted.

2.2 MANUFACTURER

- A. The pump station system integrator must be ISO 9001:2000 revision certified, with scope of registration including design control and service after sales activities.
- B. The specifications and project drawings depict equipment and materials manufactured by The Gorman-Rupp Company, as supplied by Jim House & Associates, Inc, which are deemed most suitable for the service anticipated. It is not intended, however, to eliminate other products of equal quality and performance. The contractor shall prepare his bid based

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

on the specified equipment for purposes of determining low bid. Award of a contract shall constitute an obligation to furnish the specified equipment and materials.

- C. After execution of the contract, the contractor may offer substitutions to the specified equipment for consideration. The equipment proposed for substitution must be superior in construction and performance to that specified in the contract, and the higher quality must be demonstrated by a list of current users of the proposed equipment in similar installations.
- D. In event the contractor obtains engineer's approval for equipment substitution, the contractor shall, at his own expense, make all resulting changes to the enclosures, buildings, piping or electrical systems as required to accommodate the proposed equipment. Revised detail drawings illustrating the substituted equipment shall be submitted to the engineer prior to acceptance.
- E. It will be assumed that if the cost to the contractor is less for the proposed substitution, then the contract price shall be reduced by an amount equal to the savings.

2.3. UNIT BASE

- A. Station base shall be constructed of structural grade steel. The design shall resist deformation of the structure during shipping, lifting, or handling. The base shall incorporate anchor boltholes for securing the complete station to a concrete pad (supplied by the contractor) in accordance with the project plans.

2.4 PUMP DESIGN:

- A. The pumps shall be Horizontal Close-coupled End Suction Centrifugal Pumps with back pullout design and shall be a Patterson Model E4N11A-CC HVES. Performance criteria shall be in accordance with requirements listed under PART 1 - GENERAL of this section.

1. Materials and Construction Features

- a. Pump casing: Casing shall be of ASTM 48, Class 40 cast iron, and be vertically split, with the discharge flange on the same centerline as the pump shaft.
- b. Suction and discharge connections shall be 125# class ANSI NPT. Pump casings shall have 6" suction and 4" discharge connections. Casing shall be drilled and tapped for priming, gauge, and drain connection.
- c. Sealing of the pump cavity shall be accomplished with a mechanical shaft seal.

Mechanical seal shall be furnished with a carbon seal ring, silicon carbide mating, viton elastomers and 316 stainless steel metal parts.

Mechanical seal shall be rated for 250 PSIG pressure. The elastomers shall be rated for temperatures ranging from -20 °F to 400°F.

- d. Impeller shall be of the single suction enclosed type made entirely of ASTM B584-875, die cast bronze finished smooth all over and of ample strength and stiffness for maintaining the maximum capacity of the unit.

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

Impeller shall be statically and dynamically balanced and shall be keyed to the shaft and securely held in axial position on the shaft by means of a 304 stainless steel impeller screw and washer.

Balance holes on the back of the impeller shall be provided to reduce thrust with the hydraulic balancing of pressure.

- e. Pump shaft and sleeve: The pump / motor shaft shall be made of high quality, alloy steel type AISI 1141, and engineered to transmit full drive horsepower with a liberal safety factor and minimum deflection.

The shaft shall be protected where it passes through the stuffing box with a 416 stainless steel shaft sleeve, which shall be keyed to prevent rotation on the shaft. The sleeve shall be sealed with an o-ring to prevent contamination from pumpage or external liquids.

- f. Motors: The pump shall be close-coupled to a HI / NEMA JM frame, ODP, AC electric motor rated for 25 HP, 1800 RPM, 460 Volt, 3-Phase, 60-Hertz.

Motor bearings shall be grease lubricated and sized for minimum of 20,000 hours, B10 life, which is equivalent to 100,000 hours average bearing life.

B. Serviceability

- 1. The pump manufacturer shall demonstrate to the engineer's satisfaction that consideration has been given to reducing maintenance costs.

- 2. No special tools shall be required for replacement of any components within the pump.

3. Spare Parts Kit:

- A. The following minimum spare parts shall be furnished with the pump station:

- a) One Gasket
- b) One Shaft Sleeve, with O-Ring
- c) Impeller Screw
- d) Impeller Key
- e) Impeller Washer
- f) Deflector
- g) One Mechanical Seal

2.5. VALVES AND PIPING

- A. Swing check valves with Air Cushioned Cylinder shall be constructed of constructed of heavy ductile or cast iron with a stainless steel body seat ring and single continuous stainless steel shaft for attachment of outside weight and lever and totally enclosed air cushion cylinder.

- B. Isolation Valves: Isolation valves shall be butterfly type with resilient seat designed for installation between ANSI B16.1 Class 125 flanges. Valves shall have cast iron body with Buna-N liner. Ductile iron disc with one-piece stainless steel shaft and PTFE bushings. Butterfly valves shall be Crane Centerline Series 200 or approved equal.

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

- C. Gauge Kit: Two gauges shall be installed on each pump with ball valves for shut-off and piping so that each gauge is clearly visible from the suction side of the station. Suction pressure must be monitored by a spring suspended movement type compound gauge, and discharge pressure by a spring suspended movement type pressure gauge. Gauges to be at least 3 inches in diameter graduated in pounds per square inch. Suction Pressure gauge shall be graduated 0 to 100 PSI. Discharge Pressure gauge to be graduated 0 to 100 PSI.
- D. Piping
 - 1. Flanged header pipe shall be epoxy lined schedule 40 seamless steel conforming to ANSI B36.19.
 - 2. Flanges shall be carbon steel class 150 A 105, conforming to ANSI B16.5.
- E. Supports and Thrust Blocks: Contractor must insure all pipes connected to the pump station are supported to prevent piping loads from being transmitted to pumps or station piping. Pump station discharge force main piping shall be anchored with thrust blocks where shown on the contract drawings.

2.6. Finish

- A. Exterior surfaces of pumps, piping, and steel framework shall be chemically and mechanically cleaned prior to painting. Exposed surfaces to be coated with a primer-less, high solids, satin finish two-part polyamide epoxy incorporating rust inhibitive additives. The finish coat shall be 4.0 MIL dry film thickness (minimum), resistant to oil mist exposure and solvent contact. Salt spray exposure test shall be rated to resist blistering, cracking, rusting, delamination of film or no more than 1/32" creepage at scribe after 1500 hours of exposure. The factory finish shall allow for over-coating and touch up after final installation.

2.7. ELECTRICAL CONTROL COMPONENTS

A. General

- 1. The pump control system shall be supplied by the pump manufacturer to assure a complete unit and total system responsibility. The pumps, motors, and control system shall be set-up and tested as unit at the pump manufacturer's facility.

B. UL Listing

- 1. The drive assemblies and liquid level control shall be manufactured by a UL panel builder and each assembly shall bear a serialized UL label for enclosed industrial control panels. Listing for open style industrial control panels or an assembly of listed or recognized components shall not be acceptable.

C. System Power Characteristics

- 1. Electrical power to be furnished to the site will be 460 volt, 3 phase, 60 hertz, maintained within plus or minus 10 percent. Control voltage shall not exceed 132

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

volts.

D. Panel Enclosures

1. Enclosures shall be constructed in conformance with applicable section of National Electrical Manufacturer's Association (NEMA) standards for type 1 stainless steel enclosures.

E. Door

1. Enclosure shall be equipped with a hinged door held closed with clamps that are quick and easy to operate. The door shall accommodate the mounting of switches and indicators.

F. Mounting

1. All control components shall be securely fastened to a removable back panel with screws and lock washers. Switches, indicators and instruments shall be mounted through the control panel door. Self-tapping screws shall not be used to mount any components.

G. Wiring Class

1. Complete control system engineering shall be supplied by the pump manufacturer and shall include system drawings showing all control units as they are interwired. Diagrams of individual units will not be acceptable.

H. Main Connections

1. Each control assembly shall be furnished with main terminals and ground lug for field connection of the electrical supply. The connections shall be designed to accept copper conductors of sufficient size to serve the loads. The main terminals shall be mounted to allow incoming wire bending space in accordance with article 373 of the National Electric Code (NEC). A separate terminal strip shall be provided for 115 volt, single phase control power and shall be segregated from the main terminals. Ten percent of the control terminals shall be furnished as spares.
2. An additional similar set of terminals shall be supplied for connection of a portable generator set. The Main Circuit breaker and the Generator Circuit breaker shall be mechanically interlocked such that both breakers can never be energized simultaneously. A standard slip-pin type generator receptacle shall be furnished and installed externally to the control panel such that personnel may easily connect a portable generator set to the control panel to provide power as necessary in the event that the normal electrical power source is not available. The Generator Receptacle and Generator Breaker shall be sized sufficiently to provide sufficient power to run the equipment as if on the normal electrical power source..

I. Branch Circuit Components

1. UL Label Requirement:

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

- a. Pump station controls shall conform to third party safety certification. The panel shall bear a serialized UL label listed for "Enclosed Industrial Control Panels". The enclosure, and all components mounted on the sub-panel or control cover shall conform to UL descriptions and procedures.
 - b. Motor branch components to be of highest industrial quality, secured to the sub-plate with machine screws and lockwashers. Mounting holes shall be drilled and tapped; Self-tapping screws shall not be used to mount any component.
2. Circuit Breakers and Operating Mechanisms
- a. A properly sized heavy duty motor circuit breaker, with RMS interrupting rating of 10,000 amperes at 460 volts, shall be furnished for each pump motor. The circuit breakers must be sealed by the manufacturer after calibration to prevent tampering.
 - b. An operating mechanism installed on each motor circuit breaker shall penetrate the control panel door. A padlockable operator handle shall be secured on the exterior surface. Interlocks must prevent opening the door until circuit breakers are in "OFF" position.
3. The inverter shall be suitable for operation of NEMA Design B, 4 pole motors. The inverter will have a diode bridge rectifier on the input to minimize the generation of electrical noise back into the line and provide near unity power factor. Output devices shall be transistors.
- J. Environment Conditions
1. The inverter shall be capable of operation under any combination of the following conditions without mechanical or electrical damage. Ambient Temperature: 0 to + 40 degrees C
 2. Relative Humidity: Less than 95% non-condensing
 3. Altitude: Less than 1,000M (3300 ft) above sea level
 4. Vibration: .006 inches displacement, 1G peak
 5. Shock: 15G peak for 11mS (+/- 1.0mS)
 6. Control Specification
 7. Control System: Sinusoidal pulse width modulated voltage waveform
 8. Frequency Accuracy: +/- 0.4% of max. frequency
 9. Volts/Hertz Ratio: V/Hz user programmable
 10. Operation Frequency: 0 to 400 Hz
 11. Overload Capacity: 110% Overload capability for up to 1 minute, 150% Overload capability for up to 3 seconds

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K. Digital Readout and Monitor

1. Interface to the drive is provided via a module with integral LCD display. Unit is a 7 line by 21 character backlit LCD display with graphics capability. It is used to display drive operating conditions, fault / alarm indications and programming information with full text support in multiple languages, including but not limited to English, German, French, Italian, Spanish, Portuguese and Dutch. The unit will display standby status (power on, not running), output frequency (drive run), set-up parameters and fault. With keypad, user can monitor current, voltage, frequency, acceleration and deceleration time, minimum frequency and maximum frequency. Readout also provides inverter status and protective circuits status.

L. Protection

1. The variable speed drive system shall include a diode or fully gated bridge rectifier, capacitor filter, and transistorized inverter section. Base driver signals to control firing of the power transistors will be designed with optically coupled isolators for maximum protection of the control circuits from high voltage and noise. The output will be a sinusoidal, pulse width modulated, voltage waveform for reduced harmonic heating in the motor.
2. The system protection will provide the following:
 - a. Intermittent overload - 50 to 150%
 - b. Current limit - 50 to 115%
 - c. Overcurrent - 220-300% of rated output current
 - d. Inverse time overload - 50 to 100%
 - e. Short circuit - Phase to phase or phase to ground
 - f. Overvoltage - 10% above input line or DC bus voltage
 - g. Undervoltage - 10% below line voltage
 - h. Power loss ride-through - 500mS
3. When the inverter trips out on a fault, the fault relay shall activate and the display shall indicate the reason for the trip as follows:
 - a. Overcurrent
 - b. Short circuit
 - c. Overload
 - d. Overvoltage
 - e. Undervoltage
 - f. Overheat
 - g. Ground fault
 - h. Motor stalled
 - i. Power supply fault

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

- M. Auto restart shall occur when the inverter faults. Auto restart shall be adjustable up to 9 attempts with a 0.5 to 30 second interval. Auto restart will not be attempted for ground fault, output shorted, transistor shorted or internal microprocessor fault but will trip out immediately, activate the fault relay and make the appropriate indication on the display.
- N. In the event of a fault trip, the microprocessor shall save the status of the inverter at the time of the fault and make that information available on the digital display. Information regarding the last 4 faults is maintained in event of a power loss.
- O. Operational Functions:
1. Acceleration and deceleration time independently adjustable from 0.1 to 3600.0 seconds (selectable ranges).
 2. Volts/Hertz patterns user selectable.
 3. Maximum and minimum frequency limit adjustments.)
- P. Secondary Lightning Arrestor:
1. The control panel shall be equipped with a secondary lightning arrestor to minimize damage to the pump motors and control from transient voltage surges. The arrestor shall utilize silicon-oxide varistors encapsulated in a non-conductive housing. The arrestor shall have a current rating of 60,000 Amps, and a Joule rating of 1500.
- Q. Phase Monitor:
1. The control panel shall be equipped to monitor the incoming power and shut down the pump motors when required to protect the motor(s) from damage caused by phase reversal, phase loss, low voltage, and voltage unbalance. An integral time delay shall be provided to minimize nuisance trips. The motor(s) shall automatically restart when power conditions return to normal.
- R. Control Circuit Components
1. A normal duty thermal-magnetic circuit breaker shall protect all control circuits by interrupting control power. Control panel shall include four (4) additional separate 120V/20A circuit breakers connected to the 120VAC supply power in addition to the normal circuit breakers normally required to operate the control panel. The Contractor is to disconnect existing four (4) building circuits and reconnect same to these additional four (4) breakers.
 2. Pump mode selector switches shall permit manual start or stop of each pump individually, or permit automatic operation under control of the liquid level control system. Manual operation shall override all shutdown systems, except the drive fault. Selector switches to be heavy duty, oil-tight design with contacts rated NEMA A300 minimum.
 3. Six digit elapsed time meter (non-reset type) shall be connected to each motor starter to indicate total running time of each pump in "hours" and "tenths of hours".

BASE MOUNTED DOMESTIC WATER BOOSTER STATION

4. The PLC shall be an Allen-Bradley CompactLogix 5370 L1 Control System. The PLC shall be equipped with a CPU with 384KB [1769-L16ER] or 512KB [1769-L18ERM] of user memory, and two EtherNet/IP communication ports supporting ring topologies and 1 USB port for firmware download and programming. The Controller shall utilize the small applications 1734 I/O modules. The Controller shall be designed to implement consumed tag, event instruction, embedded inputs, remote I/O, axis, and motion event triggers. The controller shall be equipped to handle up to 32 Controller Tasks and 100 programs/task.
 5. The PLC shall operate on 24VDC power and be equipped with a 24VDC embedded power supply. A 1784-SD1 (1GB) Memory Module shall be shipped with the controller. The controller will contain, at least but not limited to, embedded digital I/O [16DC Inputs, 16DC Outputs]. The controller shall accept all digital and analog I/O necessary to accomplish the specified operation. A minimum of 10% spare of the I/O used shall be supplied.
 6. The program logic shall be stored on the processor as well as on a programmable, read only 1 GB SD card [shipped with controller]. The memory module shall auto load and run when installed in the programmable control processor and is included to facilitate field repair or replacement of the programmable control hardware without the use of programming terminals or personal computers.
 7. The PLC shall communicate with the drive using a EtherNet/IP, but can also support other communication protocols such as ControlNet, or DeviceNet networks. The PLC shall issue drive start/stop and speed commands. Drive status shall also be communicated to the PLC using EtherNet/IP. The drive shall be configured to operate manually without the use of the PLC.
 8. An Allen-Bradley PanelView Plus 6 700 electronic operator interface shall be provided for data entry and display. The Operator Interface Display size will be atleast 6.5 inches with Color active matrix, thin film transistor (TFT), liquid crystal display (LCD).The operator interface shall have an 18-Bit color graphic resolution with backlight CCFL of 50,000 hours minimum. The operator interface shall be mounted on the front of the control panel with other operator controls and shall be compatible with the PLC communication protocol. The operator interface shall be a backlit, touch-screen terminal. The operator interface program shall be stored externally on a Secure Digital (SD) card .
 9. Electromechanical relays and timers, when used shall be equipped with 120vac coils and contacts rated NEMA A-300 minimum. Timers shall be pneumatic or synchronous motor driven.
 10. A duplex ground fault receptacle providing 115 VAC, 60 Hz, single phase current, will be mounted on the control enclosure. Receptacle circuit shall be protected by a 15 ampere thermal-magnetic circuit breaker.
- S. Control Logic
1. Control logic shall be accomplished using programmable controllers.

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Electromechanical relays may be used when necessary. However, the primary control logic shall be performed by the PLC.

2. The control shall be pre-programmed or wired to provide the following routines:
 - a. Pump alternation at lead stop
 - b. Excessive pump run time alternation
 - c. Jump to next pump on lead failure
 - d. Start/stop pumps at normal pressure settings
 - e. Pump start delays when called simultaneously
 - f. General alarm pilot light activation: Quick flashing alarm/slow flashing acknowledge/ steady on reset/off when clear
 - g. Station trouble alarm(115vac and normally open dry contact)
 - h. Low pressure alarms
 - i. Pump start/stop pressure control
 - j. Drive speed/pressure control
 - k. Drive fault alarm

3. The operator interface shall be equipped with the following displays and functions:
 - a. Main Menu
 - b. Suction Pressure
 - c. System Pressure
 - d. Drive Run Status
 - e. Elapsed Time
 - f. Low Suction Pressure Alarm Status
 - g. Drive Fault Alarm Status
 - h. Suction Pressure Signal Loss Status
 - i. System Pressure Signal Loss Status
 - j. Pump Sequence Selector
 - k. Alarm Silence
 - l. Alarm Reset
 - m. System Pressure Setpoint
 - n. Low Suction Pressure Alarm Setpoints
 - o. Pump Start and Stop Delay Setpoints
 - p. Speed/Level Setpoints (1 pump running)
 - q. Speed/Level Setpoints (2 pumps running)
 - r. Power-up Delay Setpoint
 - s. Alarm Delay Setpoint
 - t. Pump Start Delay Setpoint
 - u. Alternation Time Interval Setpoint
 - v. Transmitter Calibration

T. Mode of Operation

1. The system pressure is measured by a non submersible transducer, model MEAS KPSI 27, as manufactured by Measurement Specialties. The transducer shall provide a 4-20 mA signal to the PLC proportional to pressure. The desired on/off pressure shall be set by the operator on the operator interface. The lead pump runs alone to maintain the certain pressure. Should the pressure fall below a certain set point, the lag pump shall start and run during peak demands or fire

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flows. Simultaneous three pump operation should not be needed though possible should the demand exceed duplex operation. All three pumps shall alternate in sequence.

U. Auxiliary Power Transformer:

1. The booster station shall be equipped with a 10 KVA stepdown transformer to supply 115 volt, AC, single phase for the control and auxiliary equipment and to supply the existing 115 volt circuit at the station. The primary and secondary side of the transformer to be protected by a thermal magnetic circuit breaker, sized to meet the power requirements of the transformer. An operating mechanism shall penetrate the control panel door, and a padlockable operator handle shall be secured on the exterior surface. Interlocks must prevent opening the door until circuit breakers are in "OFF" position.
2. The transformer shall be permanently mounted and, if necessary, may be mounted externally near the pump control panel as necessary. The transformer shall be installed using the appropriate isolation pads to minimize vibration and/or noise. If external mounting is necessary, electrical contractor shall wire the transformer in accordance with the drawings supplied by the PCP vendor.

V. Wiring

1. The pump station, as furnished by the manufacturer, shall be completely wired, except for power feed lines to the branch circuit breakers and final connections to remote alarm devices.
2. All wiring, workmanship, and schematic wiring diagrams shall comply with applicable standards and specifications of the National Electric Code (NEC).
3. All user serviceable wiring shall be type MTW or THW, 600 volts, color coded as follows:

a. Line and Load Circuits, AC or DC power.....	Black
b. AC Control Circuit Less Than Line Voltage.....	Red
c. DC Control Circuit.....	Blue
d. Interlock Control Circuit from external source.....	Yellow
e. Equipment Grounding Conductor.....	Green
f. Current Carrying Ground.....	White
g. Hot With Circuit Breaker Open.....	Orange
4. Control circuit wiring inside the panel, with exception of internal wiring of individual components, shall be 18 gauge minimum, type MTW or THW, 600 volts. Power wiring to be 14 gauge minimum. Motor branch wiring shall be 10 gauge minimum.

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5. Motor branch and other power conductors shall be sized to carry the circuit load without exceeding either the conductor ampacity or the temperature rating of the connecting termination. Wires shall be clearly numbered or identified at each end. All wires in the control panel shall be bundled and tied or routed in ducts. All wires extending from components on the door shall terminate at a terminal block mounted on the back panel. All wiring extending outside the control panel shall terminate in a terminal block and shall be routed in conduit.
6. Control wires connected to door mounted components must be tied and bundled in accordance with good commercial practice. Bundles shall be made flexible at the hinged side of the enclosure. Adequate length and flex shall allow the door to swing full open without undue stress or abrasion. Bundles shall be held on each side of hinge by mechanical fastening devices.

W. Conduit

1. Factory installed conduit shall conform to following requirements:
2. All conduit and fittings to be UL listed.
3. Liquid tight flexible metal conduit to be constructed of smooth, flexible galvanized steel core with smooth abrasion resistant, liquid tight polyvinyl chloride cover.
4. Conduit to be supported in accordance with articles 346, 347, and 350 of the National Electric Code.
5. Conduit shall be sized according to the National Electric Code.

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X. Grounding

1. Station manufacturer shall ground all electrical equipment inside the pump station to the control panel back plate. All paint must be removed from the grounding mounting surface before making final connection.
2. The contractor shall provide an earth driven ground connection to the pump station at the main grounding lug in accordance with the National Electric Code (NEC).

Y. Equipment Marking

1. Permanent corrosion resistant name plate(s) shall be attached to the control and include following information:
 - a. Equipment serial number
 - b. Supply voltage, phase and frequency
 - c. Current rating of the minimum main conductor
 - d. Electrical wiring diagram number
 - e. Motor horsepower and full load current
 - f. Motor overload heater element
 - g. Motor circuit breaker trip current rating
 - h. Name and location of equipment manufacturer
2. Control components shall be permanently marked using the same identification keys shown on the electrical diagram. Labels shall be mounted adjacent to device being identified.
3. Switches, indicators, and instruments mounted through the control panel door shall be labeled to indicate function, position, etc. Labels shall be mounted adjacent to, or above the device.

3. PART - EXECUTION

3.1. EXAMINATION

- A. Contractor shall off-load equipment at installation site using equipment of sufficient size and design to prevent injury or damage. Station manufacture shall provide written instruction for proper handling. Immediately after off-loading, contractor shall inspect complete pump station and appurtenances for shipping damage or missing parts. Any damage or discrepancy shall be noted in written claim with shipper prior to accepting delivery. Validate all station serial numbers and parts lists with shipping documentation. Notify the manufacturers representative of any unacceptable conditions noted with shipper.

3.2. INSTALLATION

- A. Install, level, align, and lubricate pump station as indicated on project drawings. Installation must be in accordance with written instructions supplied by the manufacture at time of delivery.

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- B. Fasteners at all pipe connections must be tight. Install pipe with supports and thrust blocks to prevent strain and vibration on pump station piping.
- C. Check motor and control data plates for compatibility to site voltage. Install and test the station ground prior to connecting line voltage to station control panel.
- D. Prior to applying electrical power to any motors or control equipment, check all wiring for tight connection. Verify that protective devices (fuses and circuit breakers) conform to project design documents. Manually operate circuit breakers and switches to ensure operation without binding. Open all circuit breakers and disconnects before connecting utility power. Verify line voltage, phase sequence and ground before actual start-up.

3.3. FIELD QUALITY CONTROL

A. Operational Test

1. Prior to acceptance by owner, an operational test of all pumps, drives, and control systems shall be conducted to determine if the installed equipment meets the purpose and intent of the specifications. Tests shall demonstrate that all equipment is electrically, mechanically, structurally, and otherwise acceptable; it is safe and in optimum working condition; and conforms to the specified operating characteristics.
2. The contractor shall supply clear water volume adequate to operate station through several pumping cycles. Observe and record operation of pumps, suction and discharge gauge readings, ampere draw, pump controls, and pressure controls. Check calibration of all instrumentation equipment, test manual control devices, and automatic control systems. Be alert to any undue noise, vibration or other operational problems.

B. Manufacturers Start-up Services

1. Co-ordinate station start-up with manufacturer's technical representative. The representative or factory service technician will inspect the completed installation. He will calibrate and adjust instrumentation, correct or supervise correction of defects or malfunctions, and instruct operating personnel in proper operation and maintenance procedures.

3.4. CLEANING

- A. Prior to acceptance, inspect interior and exterior of pump station for dirt, splashed material or damaged paint. Clean or repair accordingly. Remove from the job site all tools, surplus materials, scrap and debris.

3.5. PROTECTION

- A. The pump station should be placed into service immediately. If operation is delayed, drain liquid from pumps and piping. Open motor circuit breakers and protect station controls and interior equipment from cold and moisture.

END OF SECTION